Public Health, Hygiene and Sanitation

USSR

RYZHIKOV, M. I., Chief Epidemiologist of the Ministry of Public Health, BSSR, and SEMUKHA, V. I., Chairman of the Central Committee of the Society of the Red Cross BSSR

"Organization and Execution of Overall Readiness Checks of Sanitary Detachments for Work in Bacteriological Foci"

Minsk, Zdravookhraneniye Belorussii, Vol 16, No 7, Jul 70, pp 72-75

Translation: In their military plans, the aggressors assign an important place to the use of bacteriological as well as thermonuclear weapons. In recent years this has been declared frequently and in an active form in the periodical press of some capitalistic countries.

We must not ignore the expressions of a group of American scientists who once participated in a government biological warfare project concerning the fact that, in the first place, those will suffer from biological weapons who do not believe in them.

In the system of defense against bacteriological weapons, a particularly important significance lies in the readiness of the medical service to ensure the

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RYZHIKOV, M. I., et al, Zdravcokhraneniye Belorussii, Vol 16, No 7, Jul 70, pp 72-75

rendering of aid to the sick and the introduction of a complex of epidemiological measures regarding localization and liquidation of the site of bacterial infection.

In spite of the presence of a wide network of medical establishments in the country, it can be assumed that in massive foci of infection, caused for instance by aerosol contamination, the present strength and supplies of the medical service would be insufficient. The basic reserves of the medical service are the sanitary units, which are organized according to the civil defense plans in the national economy by the leaders of enterprises, establishments, collective farms, and higher and middle educational institutions, together with the local organizations of the Societies of the Red Cross. A 40-hour program for the theoretical and practical preparation of the sanitary units is designed for the acquisition of knowledge and skills for work at sites of mass infections.

At the bacteriological focus, the main direction of the work is inspection of the site together with the medical workers, rendering aid in the sanitary treatment of the population and decontaminating the territory, conducting special prophylaxis, finding the sick and evacuating them to sanitary stations, and performance of conclusive disinfection of quarters.

1/2 010 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--POSSIBLE CULTIVATION OF FOOD YEASTS IN A MIXTURE OF HYDROLYZATE AND RESIDUAL LIQUOR FROM ALCOHOL FERMENTATION -U-

AUTHOR-(02)-MONAKHOVA, N.I., SEMUSHINA, T.N.

COUNTRY OF INFO--USSR

SOURCE--GIDROLIZ. LESOKHIM, PROM. 1970, 23(1), 3-5

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--YEAST, ALCOHOL, FERMENTATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0481 STEP NO--UR/0328/70/023/001/0003/0005

CIRC ACCESSION NO--AP0117717
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 010

CIRC ACCESSION NO--AP0117717

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN MOST HYDROLYSIS PLANTS, FEED YEASTS ARE GROWN EITHER IN DIL. HYDROLYZATE OR IN THE RESIDUAL LIQUOR FROM ALC. FERMENTATION. SOME PLANTS, (E.G. THE VOLGOGRAD PLANT), USE A MIXT. OF THE 2 SUBSTRATES AND THIS METHOD ALWAYS GIVES LOWER YIELDS OF YEAST. THE BASIC DIFFERENCE BETWEEN THE HYDROLYZATES AND RESIDUAL LIQUIR IS THEIR SUGAR COMPN.: HYDROLYZATES CONTAIN MAINLY HEXOSES (GLUCOSE, MANNOSE, AND GALACTOSE IN SOFTWOOD HYDROLYZATES), PENTOSES CONSTITUTING SIMILAR TO 25PERCENT OF THE TOTAL SUGARS. THE RESIDUAL LIQUOR CONTAINS MAINLY XYLOSE, A SMALL AMT. OF ARABINOSE, AND TRACES OR NO HEXOSES. WHEN THE 2 SUBSTRATES ARE MIXED IN A 1 TO 1 RATIO, THE RATIO OF HEXOSES TO PENTOSES IS 1 TO 0.7. CANDIDA WAS GROWN UNDER STD. CONDITIONS IN CONTINUOUS CULTURES ON A HYDROLYZATE, ON LIQUOR, AND ON MIXTS. OF THE 2 IN VARIOUS PROPORTIONS. AT EQUAL INITIAL CONC. OF SUGARS, GROWTH WAS LOWER WHEN YEAST WAS GROWN IN MIXED SUBSTRATES THAN WITH EITHER THE HYDROLYZATE OR RESIDUAL LIQUOR. IN THE MIXED SUBSTRATES, GROWTH OCCURRED IN 2 STAGES WITH A CONSIDERABLE LAG BETWEEN THE STAGES.

UNCLASSIFIED

AA0040730 Semushkin, V. G. UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

243752 ELECTRODE SUPPORT OF INTERNAL ELECTRIC EROSION GRINDER. The support assembly (parts 1,2,4 and 5) is an addition to the original machine (patent No. 140313) the object of which is to reduce the deflection and vibration of the electrode 3. The support consists of a rod 2 mounted in a pivotting arm 1 and held against the electrode 3 by a spring 6. The support position is adjusted by a set screw and stop 5.

30.8.67 as 1184407/25-8.Add to 140313.YU.V.ASTAKHOV et al. AUTOMATIC EQUIPMENT FOR ELECTRICAL EROSION MACHINING DES. OFFICE (3.10.69) Bul 17/14.5.69. Class 21h. Int.Cl.B 23k.

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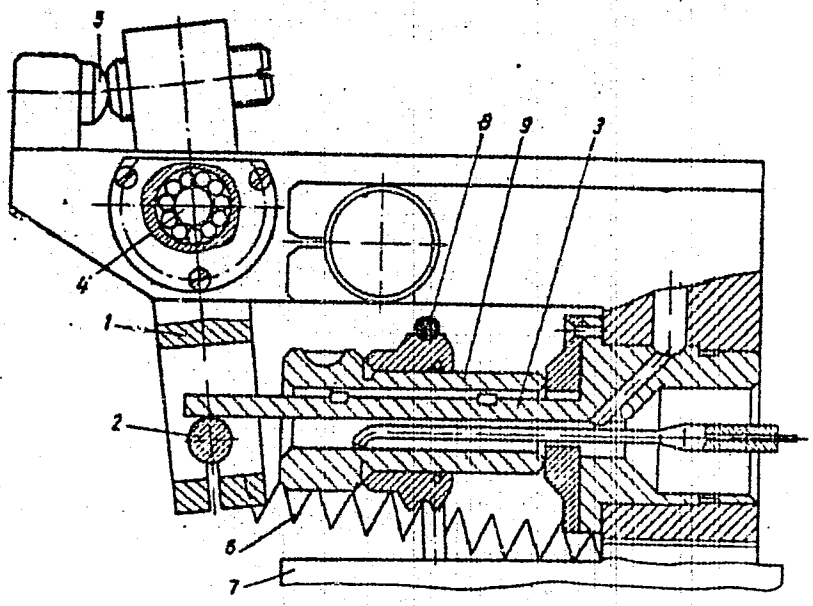
19750385

AA0040730



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19750386

LD

AA0040730

AUTHORS: Astakhov, Yu. V.; Semushkin, V. G.; and Khromov, N. P.

Osoboye Konstruktorskoye Byuro po Proyektirovaniyu Sredstv Avtomatizatsii i Kontrolya i Elektroerozionnogo Oborudovaniya

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1/2 017 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--GEOCHEMICAL CHARACTERISTICS OF PETROLEUMS FROM THE RECHITSA DEPOSIT -U-

AUTHOR--PRYLYUBKA, YA.M., LAPUSH, V.A., SEMYACHKA, R.YA.

COUNTRY OF INFO--USSR

SOURCE--VESTSI AKAD. NAVUK BELARUS. SSR, SER, KHIM. NAVUK 1970, (1), 90-4

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--PETROLEUM DEPOSIT, CRUDE OIL, CHEMICAL COMPOSITION, PHYSICAL CHEMISTRY PROPERTY, METHANE, GEOCHEMISTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1135 STEP NO--UR/0419/70/000/001/0090/0094

CIRC ACCESSION NO--AP0107624

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202820013-1"

2/2 017 UNCLASSIFIED

CIRC ACCESSION NO--AP0107624 PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RECHITSA DEPOSIT, SITUATED IN THE SOUTHEASTERN PART OF THE PRYPYAT SYNCLINE, IS LOCALIZED IN A BRACHYANTICLINAL FOLD OF SUBLATITUDINAL STRIKE. THE DEPOSIT CONTAINS 7 OIL HORIZONS: 4 AMONG THE INTERSALT FORMATIONS (LOWER AND UPPER FAMENNIAN), 2 BELOW SALIFEROUS STRATA (SUBSALT FORMATION, FRASNIAN), AND 1 IN MIDDLE DEVONIAN CARBONATE RESERVOIR ROCKS. SAMPLES FROM 16 WELLS WERE ANALYZED. THE D PRIME20 OF OILS VARIES (0.840-0.906). THE LIGHTEST PETROLEUMS IN EACH HORIZON ARE CONCD. IN ELEVATED PARTS OF THE STRUCTURE AND THE HEAVIEST IN ITS LOWEST PARTS, I.E. CLOSE TO THE OIL WATER CONTACT. PETROLEUMS OF THE RECHITSA DEPOSIT ARE RICH IN SOLID PARAFFIN HYDROCARBONS (SMALLER THAN OR EQUAL TO 0.5PERCENT) AND HAVE HIGH F.P. CAUSED BY LARGE AMTS. OF SOLID PARAFFINS. THE DIFFERENCES IN COMPN. AND PROPERTIES OF OILS WERE ATTRIBUTED TO THE VARIABLE DEGREES OF METAMORPHISM AND SUPERGENE ALTERATION.

UNCLASSIFIED

USSR

UDC 621.357.8:669.21-418

SOROKIN, I. N., SEMYACHKO, G. YA., and LAVRISHCHEV, V. P.

"Anodic Stripping of Gold Films in Solutions of Halide Acids"

Moscow, Sb. nauch. tr. po probl. mickroelektron. Mosk. in-t elektron. Tekhn. (Collection of Scientific Papers on Problems in Electromicro-analysis. Moscow Institute of Electronics Technology), Vyp 11, 1972, pp 113-119 (from Referativnyy Zhurnal -- Khimiya, No 7, 1973, Abstract No 7L334)

Translation: A study was made of the process of anodic dissolution of gold films in solutions of halide acids. The acid HCl is the most effective and most stable electrolyte. The influence of temperature on the anodic process was examined by the isopotential method. The experimental data indicated that the dissolution of the thin gold films proceeded via a concentration regime.

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USSR

UDC 621.357.3:669.21-418

SEMYACHKO, G. YA., SOROKIN, I. N., and LAVRISHCHEV, V. P.

"Kinetics of Anodic Stripping of Thin Gold Films in Tartaric Acid Solutions of Thiourea"

Moscow, Sb. nauch. tr. po probl. mikroelektron. Mosk. in-t elektron. Tekhn. (Collection of Scientific Papers on Problems in Electromicro-analysis. Moscow Institute of Electronics Technology), No 11, 1972, pp 106-112 (from Referativnyy Zhurnal -- Khimiya, No 7, 1973, Abstract No 7L333)

Translation: A study was made of the kinetic relationships of the electrodissolution of gold films in thiourea solutions. The influence of the concentrations of thiourea and tartaric acid in the solution and the temperature on the rate of the anodic process were determined. It was established experimentally that the dissolution of the fold films during electrolysis went via a diffusion mechanism.

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1/2 023 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--ELECTROPOLAROGRAPHIC DETERMINATION OF THE COMPOSITION OF NICHROME FILMS SPRAYED ON A SOLID SUBSTRATE IN VACUO -U-

AUTHOR-(04)-DYAKOVA, A.F., SEMYACHKO, G.YA., KHARIN, A.N., DYAKOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 593-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLAROGRAPHIC ANALYSIS, NICKEL, CHROMIUM, METAL COATING, CHEMICAL ANALYSIS, NICHROME ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0954

STEP NO--UR/0080/70/043/003/0593/0596

CIRC ACCESSION NO--AP0131539

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0131539

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NICHROME FILM SAMPLE WAS DISSOLVED IN 5-7 ML HCL WITH HEATING AND THE SOLN. WAS EVAPD. THE OSCILLOPOLAROGRAPHIC ANAL. WAS PERFORMED IN A 1 M NH SUB4 CL PLUS 1M NH SUB4 OH BUFFER; THE INITIAL VOLTAGE WAS NEGATIVE 0.7 V FOR NI AND NEGATIVE 1.3 V FOR CR. O WAS REMOVED BY N BUBBLING. THE ERROR WAS PLUS OR MINUS 3PERCENT. FACILITY: TAGANROG. RADIOTEKH. INST., TAGANROG, USSR.

UNCLASSIFIED

016 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--GEOCHEMICAL FEATURES OF THE PETROLEUM OF THE SHATILKOVSKII REGION -U-

AUTHOR-(04)-SEMYACHKO, R.YA., AGABEKOVA, L.A., NOVITSKAYA, T.A., NIKULENKO, YE.F.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK BELORUSS. SSR 1970, 14(3), 261-3

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS, PROPULSION AND FUELS, CHEMISTRY

TOPIC TAGS--GEOCHEMISTRY, GEOGRAPHIC LOCATION, AROMATIC HYDROCARBON, METHANE, PETROLEUM PROSPECTING, GASOLINE, CHEMICAL COMPOSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/2056 STEP NO--UR/0250/70/014/003/0261/0263

CIRC ACCESSION NO--AT0122285

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0122285

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SMALL OIL FLOW (0.5 M PRIME3 -DAY) WAS OBTAINED FROM THE 2993-3300 M INTERVAL FROM A HOLE DRILLED IN THE TITLE AREA. THE OIL WAS OF LOW RESIN AND LOW S PARAFFIN TYPE WITH VERY SMALL CONTENT OF ASPHALTENES AND N. ITS LOW COKING ABILITY INDICATED THE PREDOMINANCE OF PARAFFIN HYDROCARBONS. THE PETROLEUM CONTAINED ALSO LITTLE OF ACID PRODUCTS AND A SMALL AMT. OF MECH. IMPURITIES. THE GASOLINE FRACTION WAS CHARACTERIZED BY HIGH SATN. CONTENT OF PARAFFIN HYDROCARBONS WAS ON THE AV. 70PERCENT. AN INCREASE IN CONTENT OF AROMATIC HYDROCARBONS, REACHING MAX. (15.5PERCENT) IN THE 175-200DEGREES FRACTION, WAS OBSD. DURING INCREASE IN TEMP. OF BOILING. INCREASE IN CONTENT OF S WAS OBSD. SIMULTANEOUSLY WITH INCREASE IN AMT. OF AROMATIC HYDROCARBONS. THIS SUBSTANTIATED THE FACT THAT GASOLINES OF METAMORPHOSED OILS, RICH IN CH SUB4 HYDROCARBONS, CONTAIN LARGE AMT. OF AROMATIC COMPOS. THE 60-95 AND 150-75DEGREES FRACTIONS HAD THE MAX. CONTENTS OF NAPHTHENE HYDROCARBONS. FACILITY: INST. GEOL. NAUK, MINSK, USSR.

UNCLASSIFIED

Acc. Nr. AP0045179 Abstracting Service: CHEMICAL ABST. 5-58 Ref. Code LR0191

91225c **Physicomechanical properties of adhesive cyanacrylate compositions.** Korshak, V. V.; Polyakova, A. M.; Mager, K. A.; Semyantsev, V. N.; Askadskii, A. A.; Gerashchenko, Z. V. (USSR). *Plast. Massy* 1970, (1), 44-5 (Russ). Adhesive compns., e.g., Et α-cyanoacrylate (I), Pr α-cyanoacrylate, Bu α-cyanoacrylate, and allyl α-cyanoacrylate were modified with plasticizers and thickening agents. Addn. of 20% ethylene glycol dimethacrylate or diallyl phthalate reduced the elastic modulus of poly(ethyl α-cyanoacrylate) (II). Addn. of 20% di-Bu phthalate and 10% II to I compns. gave adhesives of superior adhesive bond strength and low elastic modulus. Some monomers were also effective as plasticizers of adhesive compns. Best results were obtained with 20% Et α-cyanosorbate. CKJR

REEL/FRAME
19780079

USSR

UDC 633.57:58.04

IMAMALIYEV, A. I., KOBLOV, R. K., and SEMYKINA, YE. YE., Institute of Experimental Plant Biology, Academy of Sciences Uzbek SSR

"Some Characteristics of the Penetration, Distribution and Transformation of Defoliating Captax Derivatives in Cotton Plants"

Tashkent, Uzbekskiy Biologicheskiy Zhurnal, No 2, 1971, pp 19-21

Abstract: In a study of the effect and metabolism of mercaptobenzothiazole (Captax) derivatives as defoliants, three 2-alkylthiobenzothiazoles were synthesized: ethylcaptax, butylcaptax, and heptylcaptax, which had labelled (S^{35}) sulfide sulfur. The specific radioactivity of these compounds was 0.38-0.50 mc/mM. The defoliants were applied to cotton of the 108-F type in the concentional way in the form of a 1% emulsion. The treated leaves were crushed and extracted with diethyl ether and subsequently with a 96% aqueous solution of ethanol. Of the three alkyl derivatives, ethylcaptax exhibited the greatest capability of penetrating the cotton plant leaves, whereas heptylcaptax was the least effective in this respect. No unchanged butylcaptax was found in seeds and fibers of immature pods. Apparently there are barriers impeding the appearance of the next transformation product of butylcaptax in

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IMAMALIYEV, A. I., et al., Uzbekskiy Biologicheskiy Zhurnal, No 2, 1971, pp 19-21

the ripening fruit. However, this product penetrates into the seeds and fibers when the defoliant hits the pods. The butylcaptax entering the leaves is quickly transformed. It appears that the metabolism of all three alkyl derivatives of captax in the cottom plant is identical with retention of the benzothiazole moiety in the molecule.

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USSR

AYZENBERG, N. N., SEMYON, I. V.

"Some Criteria of Representability of k-Valued Logic Functions by Modulo Polynomials"

Mnogoyustoych. Elementy i ikh Primeneniye [Multistable Elements and Their Applications -- Collection of Works], Moscow, Sov. Radio Press, 1971, pp 84-88, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V350 by G. Gavrilov).

Translation: Two simple criteria for representability of functions from P_k by mod k polynomials are presented. If $k = p_1 \cdot p_2 \cdots p_s$, where p_i are simple numbers and $(p_i, p_j) = 1$ where $i \neq j$, function $f(x_1, \ldots, x_n) \in P_k$ is realized by a mod k polynomial when and only when for any i = 1, 2, ..., s and for any two sets $\tilde{\alpha} = (\alpha_1, \ldots, \alpha_n)$ and $\tilde{\beta} = (\beta_1, \ldots, \beta_n)$ such that $\alpha_l \equiv \beta_l \pmod{p_i}$, $l = 1, \ldots, n$ the following relationship is fulfilled. $f(\tilde{\alpha}) \equiv f(\tilde{\beta}) \pmod{p_i}$.

The second criterion is related to functions of one argument: if $k = p^m$, function f(x) P_k can be represented by a mod k polynomial when and only when $f(\alpha_0 + \alpha_1 p + \ldots + \alpha_{n-1} p^{n-1}) = \beta_0(\alpha_0) + \beta_1(\alpha_0) \cdot \Delta + \ldots + \beta_{n-1}(\alpha_0) \Delta^{n-1}$, где $0 \leq \alpha_i < p$, $0 \leq \beta_i < p^n$, $i = 0, 1, \ldots, n-1$; $\Delta = \alpha_1 p + \ldots + \alpha_{n-1} p^{n-1}$; p is a prime.

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USSR

AYZENBERG, N. N., SEMYON, I. V., TSITKIN, A. I.

"Magnitude of the Class of Functions of k-Valued Logic of n Variables, Represented by Modulo k Polynomials"

Mnogoyustoych. Elementy i ikh Primeneniye [Multistable Elements and Their Applications -- Collection of Works], Moscow, Sov. Radio Press, 1971, pp 78-83, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V349 by G. Gavrilov).

Translation: It is known (RZhMat, 1959, 9704) that the system of mod k polynomials is full in P_k when and only when k is a simple number. With composite k, it is interesting to estimate the number of functions of n variables $x_1, \ldots, x_n$, represented by mod k polynomials. In this work, a formula is produced allowing determination of the number of functions of P_k dependent on the n variables $x_1, \ldots, x_n$ and represented by polynomials in mod. k for any $k \geq 2$ and any $n \geq 1$. The author's represent the set of all such functions as $R(k, n)$, and their number (the magnitude of set $R(k, n)$) as $|R(k, n)|$. If p is a simple number and $\alpha \geq 1$, then

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AYZENBERG, N. N., SEMYON, I. V., TSITKIN, A. I., Mnogoyustoych. Elementy i ikh Primeneniye, Moscow, Sov. Radio Press, 1971, pp 78-83.

$$|R(p^{\alpha}, l)| = p^{\sum_{i=1}^{\alpha} l[m(p^{\alpha-i+l})-m(p^{\alpha-i})]}$$

where $m(p^0) = -1$, $m(p^{\beta}) = \gamma \cdot p - 1$, $\beta \geq 1$ and γ satisfies the inequalities:

and $$\gamma + \left[\frac{\gamma}{p}\right] + \left[\frac{\gamma}{p^2}\right] + \ldots \geq \beta$$

$$\gamma - 1 + \left[\frac{\gamma-1}{p}\right] + \left[\frac{\gamma-1}{p^2}\right] + \ldots < \beta.$$

Where $n \geq 2$, the following relationship is correct: $|R(p^{\alpha}, n)| = \prod_{i=1}^{\alpha} |R(p^i, n-1)|^{m(p^{\alpha-i+1})-m(p^{\alpha-i})}$. Finally, if $k = p_1^{\alpha_1} \cdot p_2^{\alpha_2} \ldots p_s^{\alpha_s}$, where p_1, p_2, ..., p_S are simple divisors of number k, then $|R(k, n)| = \prod_{i=1}^{s} |R(p_i^{\alpha_i}, n)|$.

Abstractors Note. There are many misprints in this work. The most important one is in formula (3): there should be a minus sign before the

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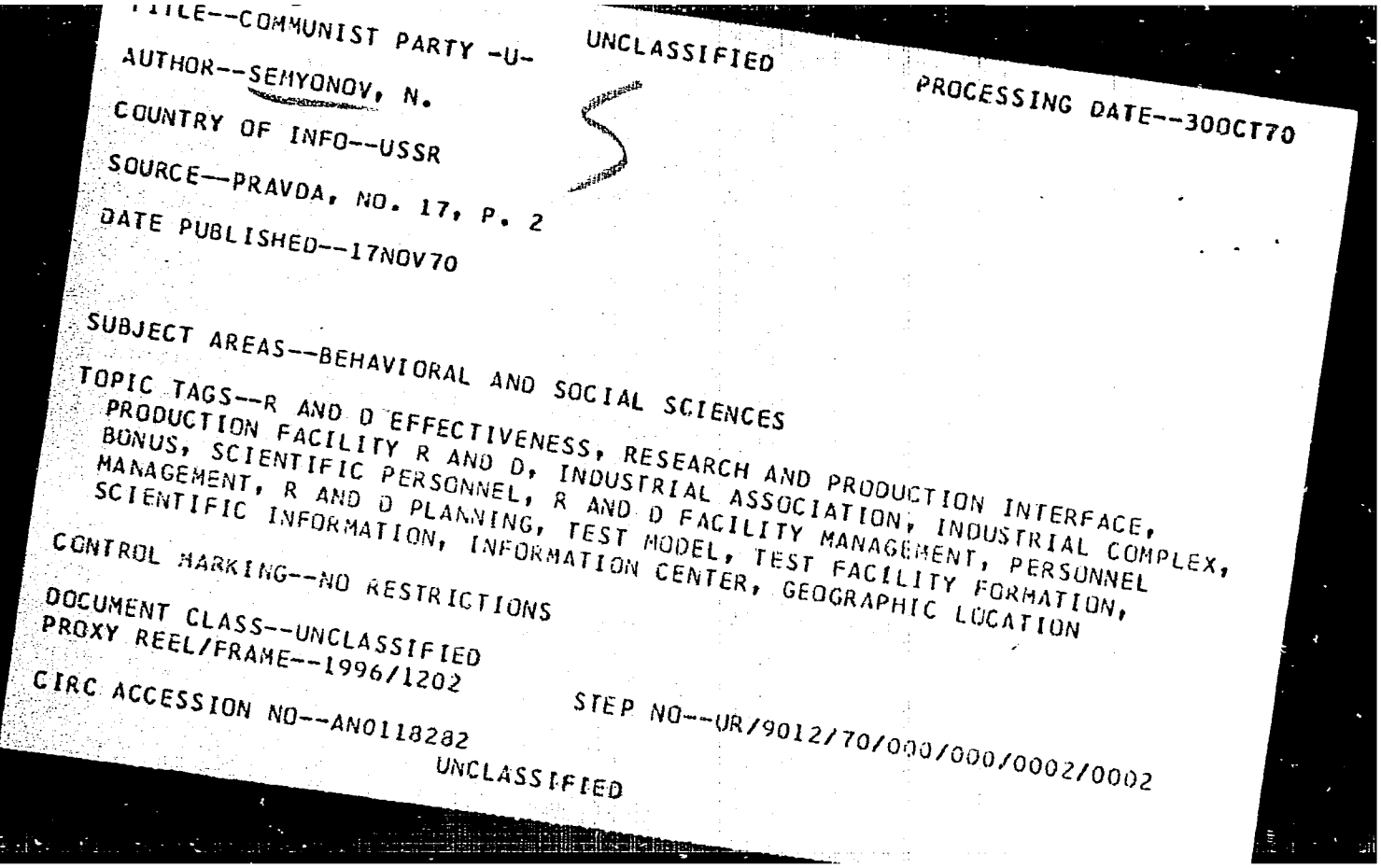
USSR

AYZENBERG, N. N., SEMYON, I. V., TSITKIN, A. I., Mnogoyustoych. Elementy i ikh Primeneniye, Moscow, Sov. Radio Press, 1971, pp 78-83.

$m(p^{\alpha-1})$ in the exponent.



TITLE--COMMUNIST PARTY -U- UNCLASSIFIED

PROCESSING DATE--30OCT70

AUTHOR--SEMYONOV, N.

COUNTRY OF INFO--USSR

SOURCE--PRAVDA, NO. 17, P. 2

DATE PUBLISHED--17NOV70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--R AND D EFFECTIVENESS, RESEARCH AND PRODUCTION INTERFACE, PRODUCTION FACILITY R AND D, INDUSTRIAL ASSOCIATION, INDUSTRIAL COMPLEX, BONUS, SCIENTIFIC PERSONNEL, R AND D FACILITY MANAGEMENT, PERSONNEL MANAGEMENT, R AND D PLANNING, TEST MODEL, TEST FACILITY FORMATION, SCIENTIFIC INFORMATION, INFORMATION CENTER, GEOGRAPHIC LOCATION

CONTROL MARKING--NO RESTRICTIONS

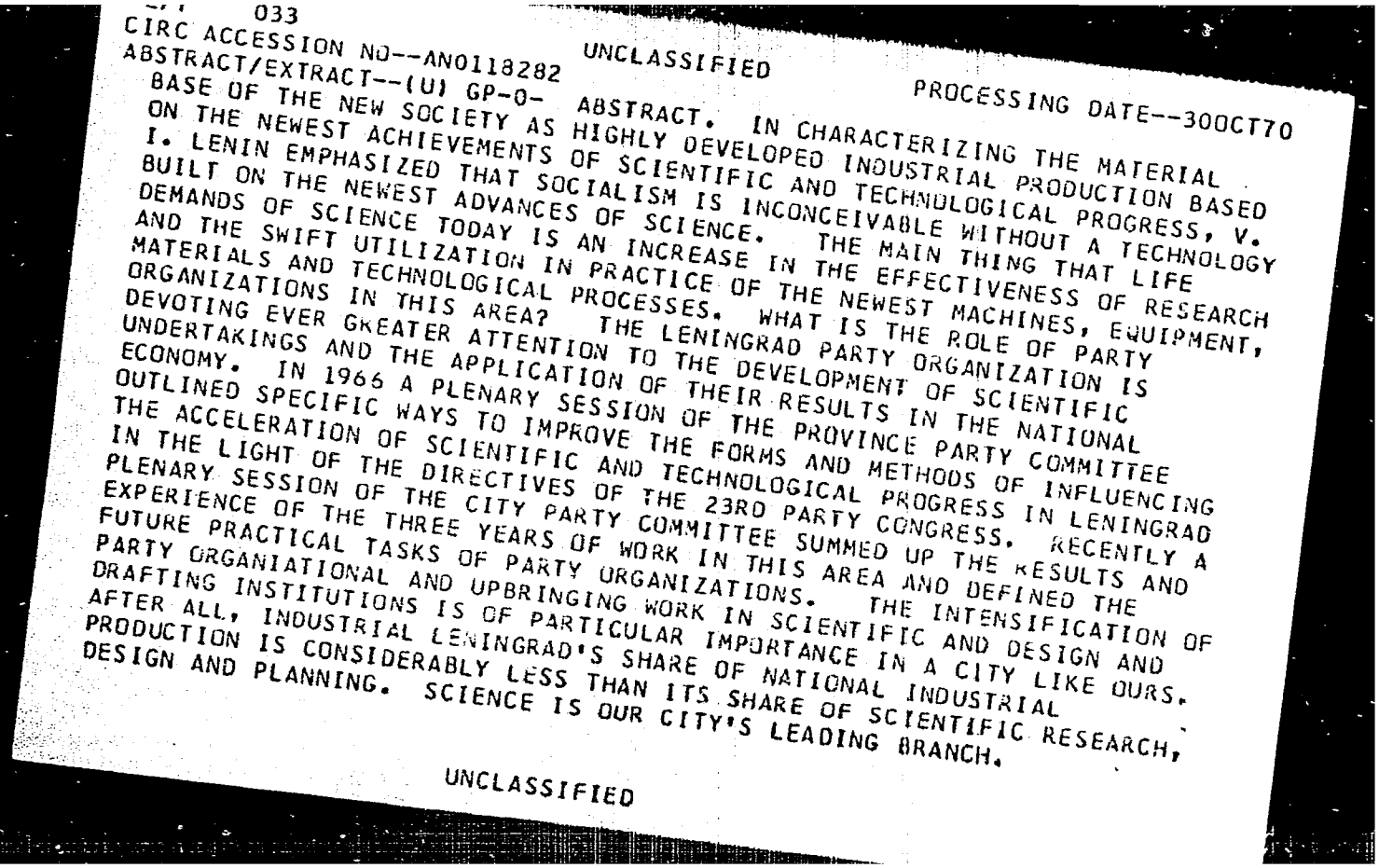
DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1202

STEP NO--UR/9012/70/000/000/0002/0002

CIRC ACCESSION NO--AN0118282

UNCLASSIFIED



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UNCLASSIFIED

CIRC ACCESSION NO--AN0118282 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN CHARACTERIZING THE MATERIAL BASE OF THE NEW SOCIETY AS HIGHLY DEVELOPED INDUSTRIAL PRODUCTION BASED ON THE NEWEST ACHIEVEMENTS OF SCIENTIFIC AND TECHNOLOGICAL PROGRESS, V. I. LENIN EMPHASIZED THAT SOCIALISM IS INCONCEIVABLE WITHOUT A TECHNOLOGY BUILT ON THE NEWEST ADVANCES OF SCIENCE. THE MAIN THING THAT LIFE DEMANDS OF SCIENCE TODAY IS AN INCREASE IN THE EFFECTIVENESS OF RESEARCH AND THE SWIFT UTILIZATION IN PRACTICE OF THE NEWEST MACHINES, EQUIPMENT, MATERIALS AND TECHNOLOGICAL PROCESSES. WHAT IS THE ROLE OF PARTY ORGANIZATIONS IN THIS AREA? THE LENINGRAD PARTY ORGANIZATION IS DEVOTING EVER GREATER ATTENTION TO THE DEVELOPMENT OF SCIENTIFIC UNDERTAKINGS AND THE APPLICATION OF THEIR RESULTS IN THE NATIONAL ECONOMY. IN 1966 A PLENARY SESSION OF THE PROVINCE PARTY COMMITTEE OUTLINED SPECIFIC WAYS TO IMPROVE THE FORMS AND METHODS OF INFLUENCING THE ACCELERATION OF SCIENTIFIC AND TECHNOLOGICAL PROGRESS IN LENINGRAD IN THE LIGHT OF THE DIRECTIVES OF THE 23RD PARTY CONGRESS. RECENTLY A PLENARY SESSION OF THE CITY PARTY COMMITTEE SUMMED UP THE RESULTS AND EXPERIENCE OF THE THREE YEARS OF WORK IN THIS AREA AND DEFINED THE FUTURE PRACTICAL TASKS OF PARTY ORGANIZATIONS. THE INTENSIFICATION OF PARTY ORGANIATIONAL AND UPBRINGING WORK IN SCIENTIFIC AND DESIGN AND DRAFTING INSTITUTIONS IS OF PARTICULAR IMPORTANCE IN A CITY LIKE OURS. AFTER ALL, INDUSTRIAL LENINGRAD'S SHARE OF NATIONAL INDUSTRIAL PRODUCTION IS CONSIDERABLY LESS THAN ITS SHARE OF SCIENTIFIC RESEARCH, DESIGN AND PLANNING. SCIENCE IS OUR CITY'S LEADING BRANCH.

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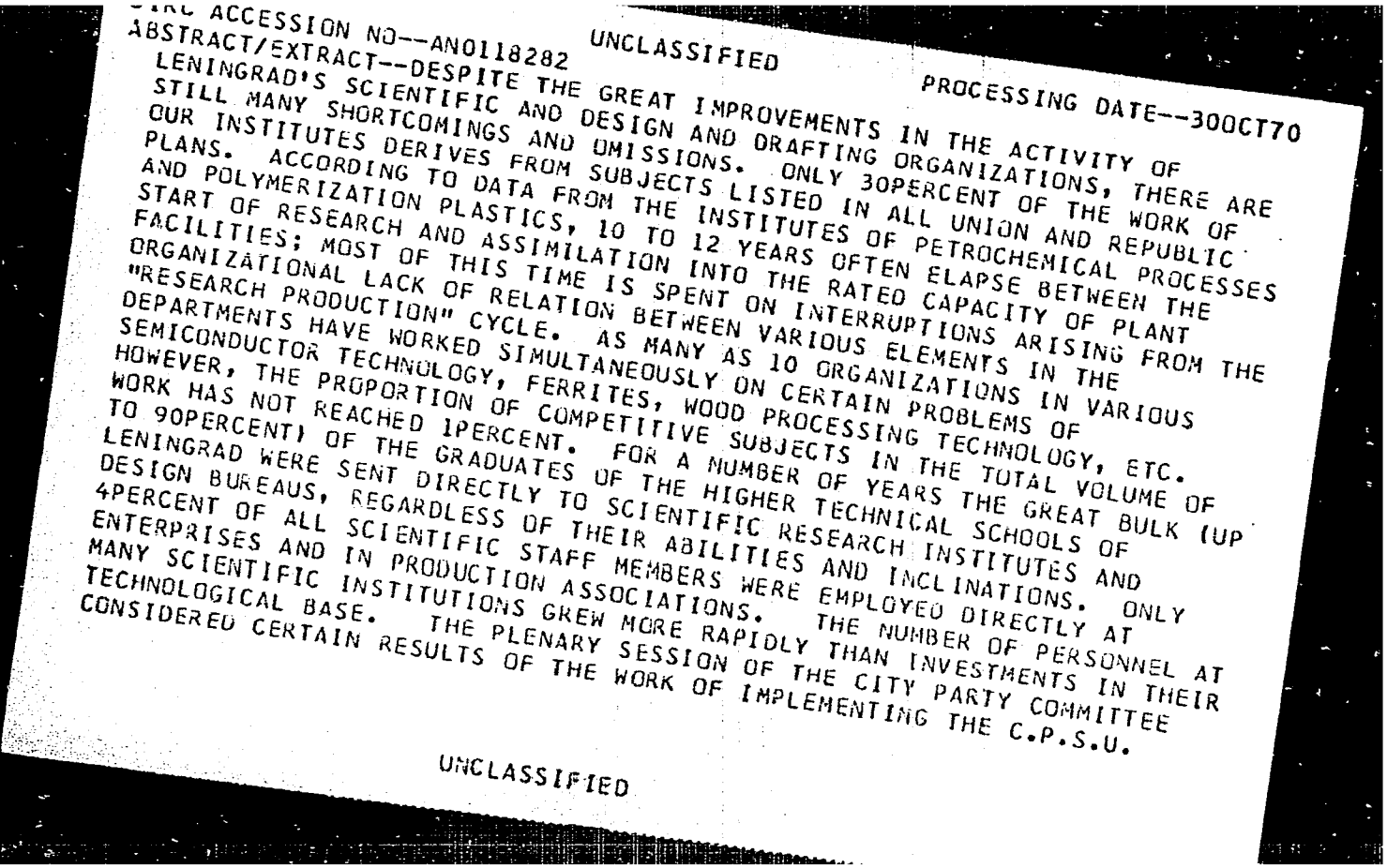

CIRC ACCESSION NO--AN0118282 UNCLASSIFIED PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--DESPITE THE GREAT IMPROVEMENTS IN THE ACTIVITY OF LENINGRAD'S SCIENTIFIC AND DESIGN AND DRAFTING ORGANIZATIONS, THERE ARE STILL MANY SHORTCOMINGS AND OMISSIONS. ONLY 30PERCENT OF THE WORK OF OUR INSTITUTES DERIVES FROM SUBJECTS LISTED IN ALL UNION AND REPUBLIC PLANS. ACCORDING TO DATA FROM THE INSTITUTES OF PETROCHEMICAL PROCESSES AND POLYMERIZATION PLASTICS, 10 TO 12 YEARS OFTEN ELAPSE BETWEEN THE START OF RESEARCH AND ASSIMILATION INTO THE RATED CAPACITY OF PLANT FACILITIES; MOST OF THIS TIME IS SPENT ON INTERRUPTIONS ARISING FROM THE ORGANIZATIONAL LACK OF RELATION BETWEEN VARIOUS ELEMENTS IN THE "RESEARCH PRODUCTION" CYCLE. AS MANY AS 10 ORGANIZATIONS IN VARIOUS DEPARTMENTS HAVE WORKED SIMULTANEOUSLY ON CERTAIN PROBLEMS OF SEMICONDUCTOR TECHNOLOGY, FERRITES, WOOD PROCESSING TECHNOLOGY, ETC. HOWEVER, THE PROPORTION OF COMPETITIVE SUBJECTS IN THE TOTAL VOLUME OF WORK HAS NOT REACHED 1PERCENT. FOR A NUMBER OF YEARS THE GREAT BULK (UP TO 90PERCENT) OF THE GRADUATES OF THE HIGHER TECHNICAL SCHOOLS OF LENINGRAD WERE SENT DIRECTLY TO SCIENTIFIC RESEARCH INSTITUTES AND DESIGN BUREAUS, REGARDLESS OF THEIR ABILITIES AND INCLINATIONS. ONLY 4PERCENT OF ALL SCIENTIFIC STAFF MEMBERS WERE EMPLOYED DIRECTLY AT ENTERPRISES AND IN PRODUCTION ASSOCIATIONS. THE NUMBER OF PERSONNEL AT MANY SCIENTIFIC INSTITUTIONS GREW MORE RAPIDLY THAN INVESTMENTS IN THEIR TECHNOLOGICAL BASE. THE PLENARY SESSION OF THE CITY PARTY COMMITTEE CONSIDERED CERTAIN RESULTS OF THE WORK OF IMPLEMENTING THE C.P.S.U.

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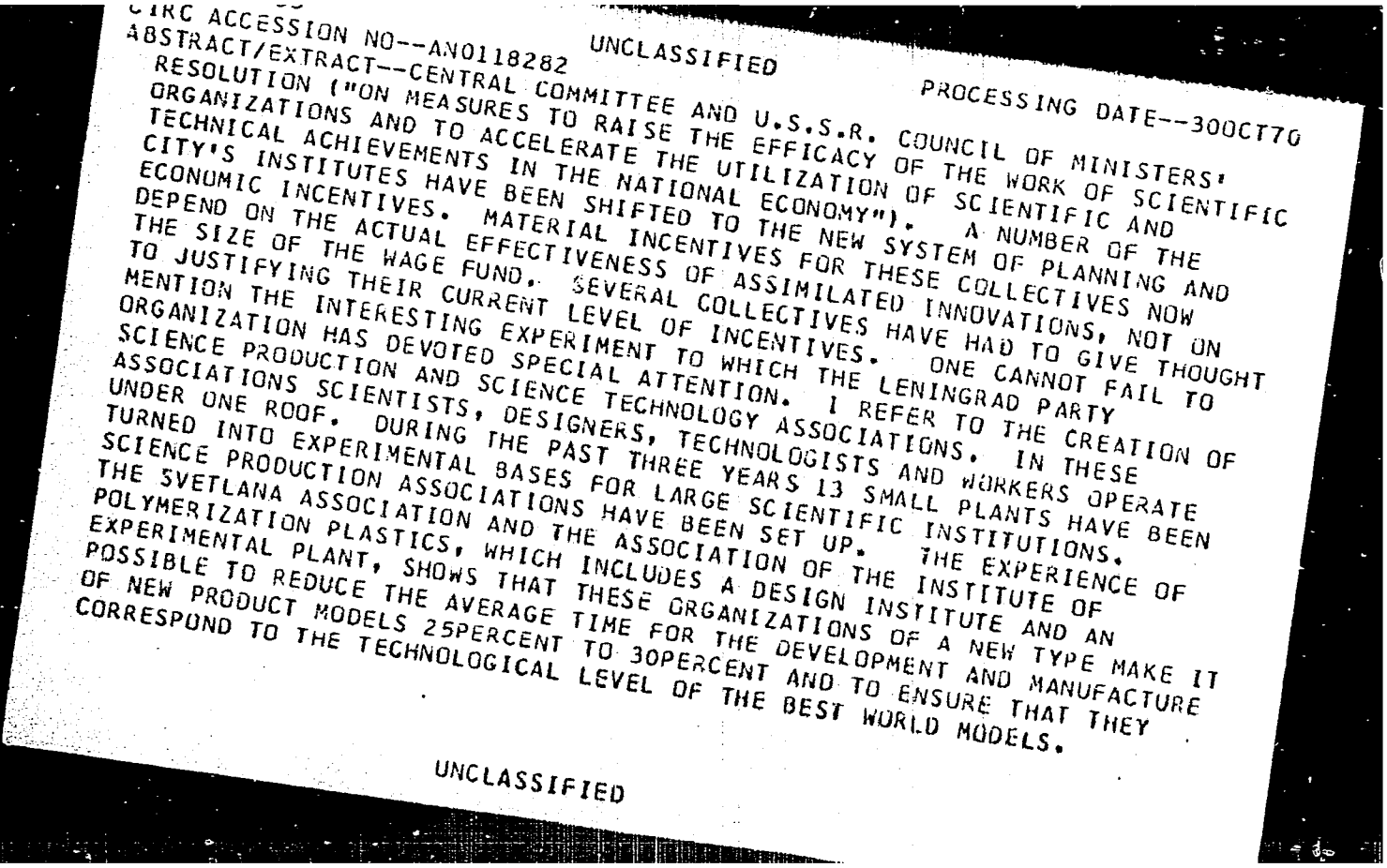

CIRC ACCESSION NO--AN0118282 UNCLASSIFIED PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--CENTRAL COMMITTEE AND U.S.S.R. COUNCIL OF MINISTERS' RESOLUTION ("ON MEASURES TO RAISE THE EFFICACY OF THE WORK OF SCIENTIFIC ORGANIZATIONS AND TO ACCELERATE THE UTILIZATION OF SCIENTIFIC AND TECHNICAL ACHIEVEMENTS IN THE NATIONAL ECONOMY"). A NUMBER OF THE CITY'S INSTITUTES HAVE BEEN SHIFTED TO THE NEW SYSTEM OF PLANNING AND ECONOMIC INCENTIVES. MATERIAL INCENTIVES FOR THESE COLLECTIVES NOW DEPEND ON THE ACTUAL EFFECTIVENESS OF ASSIMILATED INNOVATIONS, NOT ON THE SIZE OF THE WAGE FUND. SEVERAL COLLECTIVES HAVE HAD TO GIVE THOUGHT TO JUSTIFYING THEIR CURRENT LEVEL OF INCENTIVES. ONE CANNOT FAIL TO MENTION THE INTERESTING EXPERIMENT TO WHICH THE LENINGRAD PARTY ORGANIZATION HAS DEVOTED SPECIAL ATTENTION. I REFER TO THE CREATION OF SCIENCE PRODUCTION AND SCIENCE TECHNOLOGY ASSOCIATIONS. IN THESE ASSOCIATIONS SCIENTISTS, DESIGNERS, TECHNOLOGISTS AND WORKERS OPERATE UNDER ONE ROOF. DURING THE PAST THREE YEARS 13 SMALL PLANTS HAVE BEEN TURNED INTO EXPERIMENTAL BASES FOR LARGE SCIENTIFIC INSTITUTIONS. SCIENCE PRODUCTION ASSOCIATIONS HAVE BEEN SET UP. THE EXPERIENCE OF THE SVETLANA ASSOCIATION AND THE ASSOCIATION OF THE INSTITUTE OF POLYMERIZATION PLASTICS, WHICH INCLUDES A DESIGN INSTITUTE AND AN EXPERIMENTAL PLANT, SHOWS THAT THESE ORGANIZATIONS OF A NEW TYPE MAKE IT POSSIBLE TO REDUCE THE AVERAGE TIME FOR THE DEVELOPMENT AND MANUFACTURE OF NEW PRODUCT MODELS 25PERCENT TO 30PERCENT AND TO ENSURE THAT THEY CORRESPOND TO THE TECHNOLOGICAL LEVEL OF THE BEST WORLD MODELS.

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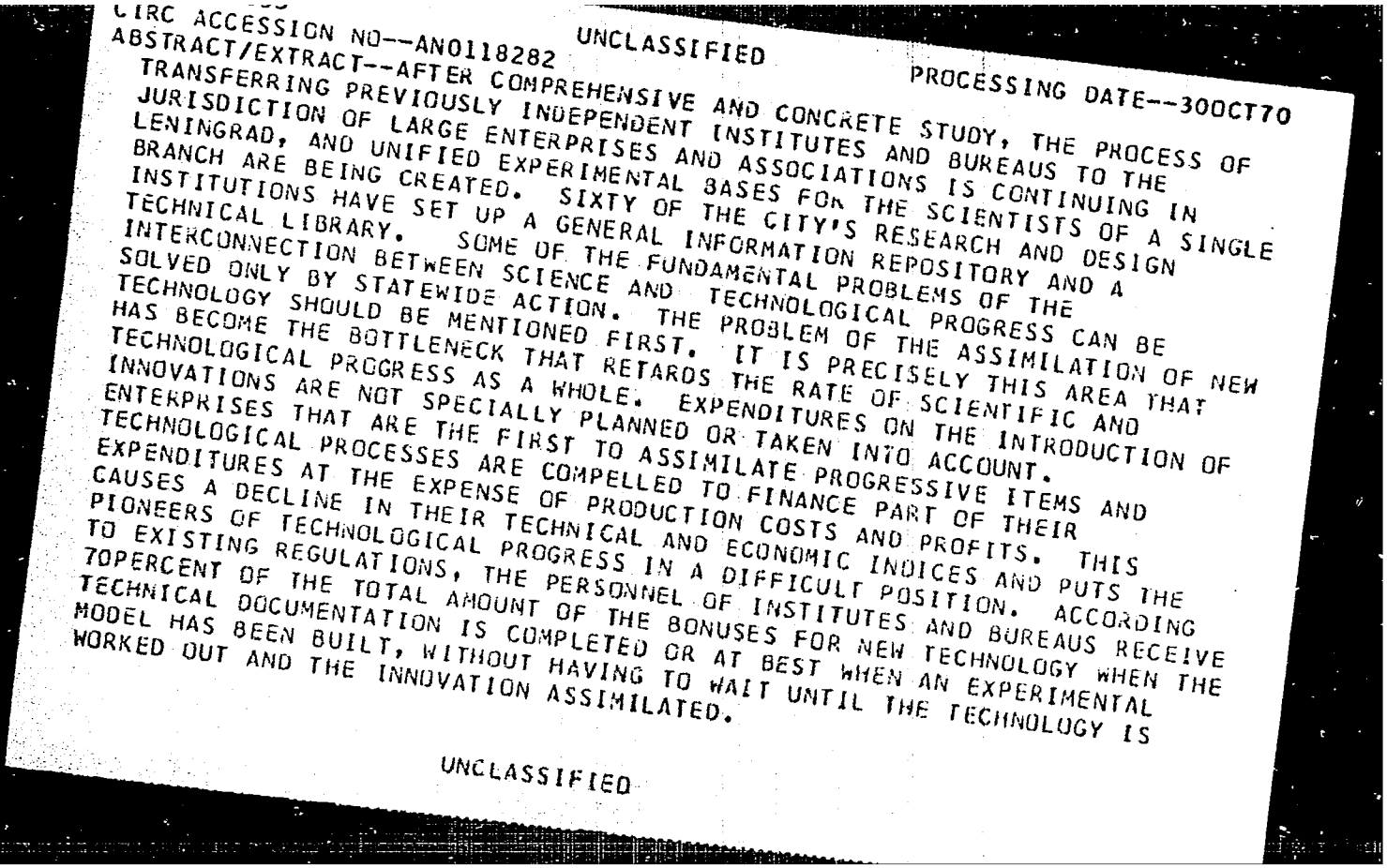

CIRC ACCESSION NO--AN0118282 UNCLASSIFIED PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--AFTER COMPREHENSIVE AND CONCRETE STUDY, THE PROCESS OF TRANSFERRING PREVIOUSLY INDEPENDENT INSTITUTES AND BUREAUS TO THE JURISDICTION OF LARGE ENTERPRISES AND ASSOCIATIONS IS CONTINUING IN LENINGRAD, AND UNIFIED EXPERIMENTAL BASES FOR THE SCIENTISTS OF A SINGLE BRANCH ARE BEING CREATED. SIXTY OF THE CITY'S RESEARCH AND DESIGN INSTITUTIONS HAVE SET UP A GENERAL INFORMATION REPOSITORY AND A TECHNICAL LIBRARY. SOME OF THE FUNDAMENTAL PROBLEMS OF THE INTERCONNECTION BETWEEN SCIENCE AND TECHNOLOGICAL PROGRESS CAN BE SOLVED ONLY BY STATEWIDE ACTION. THE PROBLEM OF THE ASSIMILATION OF NEW TECHNOLOGY SHOULD BE MENTIONED FIRST. IT IS PRECISELY THIS AREA THAT HAS BECOME THE BOTTLENECK THAT RETARDS THE RATE OF SCIENTIFIC AND TECHNOLOGICAL PROGRESS AS A WHOLE. EXPENDITURES ON THE INTRODUCTION OF INNOVATIONS ARE NOT SPECIALLY PLANNED OR TAKEN INTO ACCOUNT. ENTERPRISES THAT ARE THE FIRST TO ASSIMILATE PROGRESSIVE ITEMS AND TECHNOLOGICAL PROCESSES ARE COMPELLED TO FINANCE PART OF THEIR EXPENDITURES AT THE EXPENSE OF PRODUCTION COSTS AND PROFITS. THIS CAUSES A DECLINE IN THEIR TECHNICAL AND ECONOMIC INDICES AND PUTS THE PIONEERS OF TECHNOLOGICAL PROGRESS IN A DIFFICULT POSITION. ACCORDING TO EXISTING REGULATIONS, THE PERSONNEL OF INSTITUTES AND BUREAUS RECEIVE 70PERCENT OF THE TOTAL AMOUNT OF THE BONUSES FOR NEW TECHNOLOGY WHEN THE TECHNICAL DOCUMENTATION IS COMPLETED OR AT BEST WHEN AN EXPERIMENTAL MODEL HAS BEEN BUILT, WITHOUT HAVING TO WAIT UNTIL THE TECHNOLOGY IS WORKED OUT AND THE INNOVATION ASSIMILATED.

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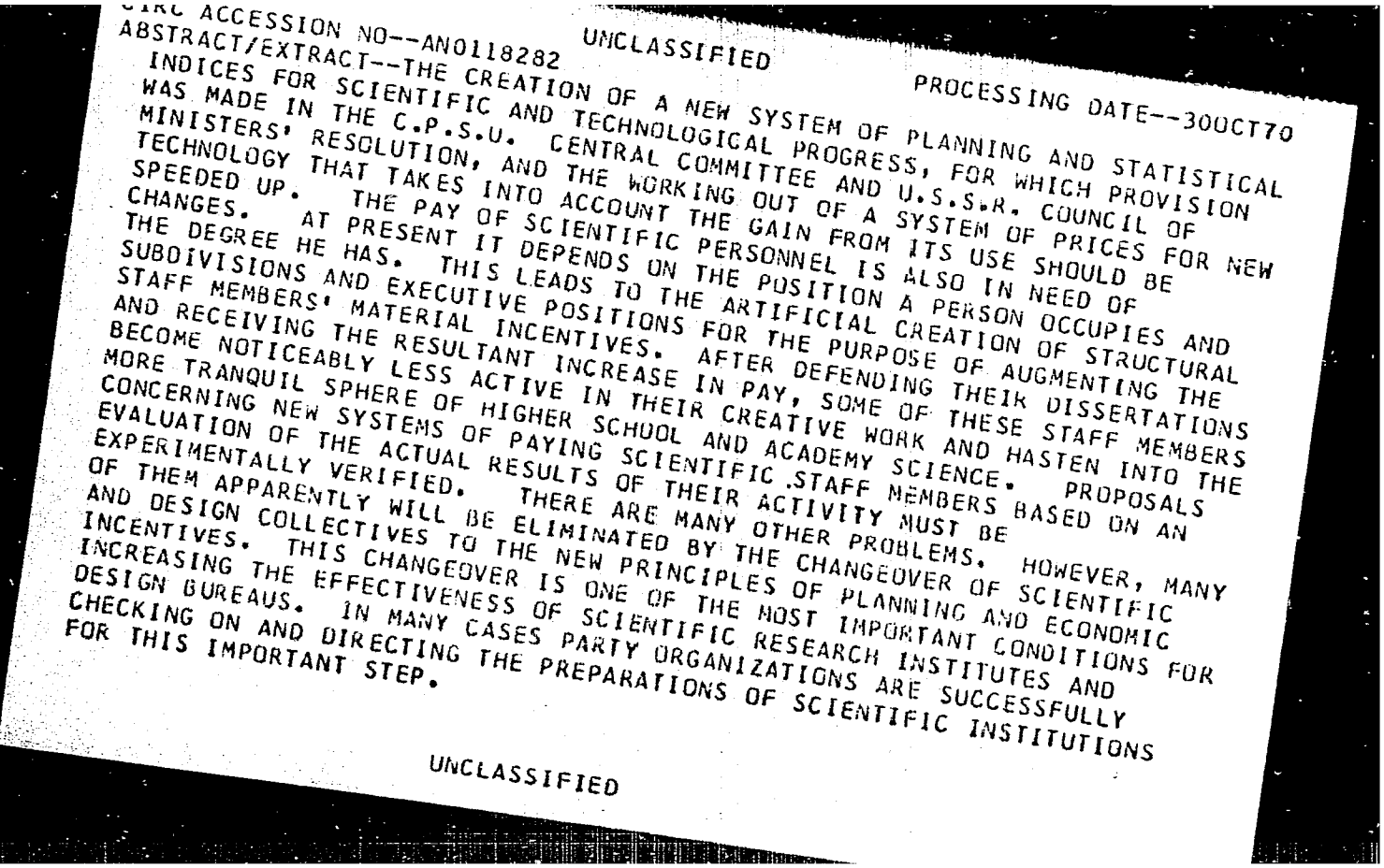

CIRC ACCESSION NO--AN0118282 UNCLASSIFIED PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--THE CREATION OF A NEW SYSTEM OF PLANNING AND STATISTICAL INDICES FOR SCIENTIFIC AND TECHNOLOGICAL PROGRESS, FOR WHICH PROVISION WAS MADE IN THE C.P.S.U. CENTRAL COMMITTEE AND U.S.S.R. COUNCIL OF MINISTERS' RESOLUTION, AND THE WORKING OUT OF A SYSTEM OF PRICES FOR NEW TECHNOLOGY THAT TAKES INTO ACCOUNT THE GAIN FROM ITS USE SHOULD BE SPEEDED UP. THE PAY OF SCIENTIFIC PERSONNEL IS ALSO IN NEED OF CHANGES. AT PRESENT IT DEPENDS ON THE POSITION A PERSON OCCUPIES AND THE DEGREE HE HAS. THIS LEADS TO THE ARTIFICIAL CREATION OF STRUCTURAL SUBDIVISIONS AND EXECUTIVE POSITIONS FOR THE PURPOSE OF AUGMENTING THE STAFF MEMBERS' MATERIAL INCENTIVES. AFTER DEFENDING THEIR DISSERTATIONS AND RECEIVING THE RESULTANT INCREASE IN PAY, SOME OF THESE STAFF MEMBERS BECOME NOTICEABLY LESS ACTIVE IN THEIR CREATIVE WORK AND HASTEN INTO THE MORE TRANQUIL SPHERE OF HIGHER SCHOOL AND ACADEMY SCIENCE. PROPOSALS CONCERNING NEW SYSTEMS OF PAYING SCIENTIFIC STAFF MEMBERS BASED ON AN EVALUATION OF THE ACTUAL RESULTS OF THEIR ACTIVITY MUST BE EXPERIMENTALLY VERIFIED. THERE ARE MANY OTHER PROBLEMS. HOWEVER, MANY OF THEM APPARENTLY WILL BE ELIMINATED BY THE CHANGEOVER OF SCIENTIFIC AND DESIGN COLLECTIVES TO THE NEW PRINCIPLES OF PLANNING AND ECONOMIC INCENTIVES. THIS CHANGEOVER IS ONE OF THE MOST IMPORTANT CONDITIONS FOR INCREASING THE EFFECTIVENESS OF SCIENTIFIC RESEARCH INSTITUTES AND DESIGN BUREAUS. IN MANY CASES PARTY ORGANIZATIONS ARE SUCCESSFULLY CHECKING ON AND DIRECTING THE PREPARATIONS OF SCIENTIFIC INSTITUTIONS FOR THIS IMPORTANT STEP.

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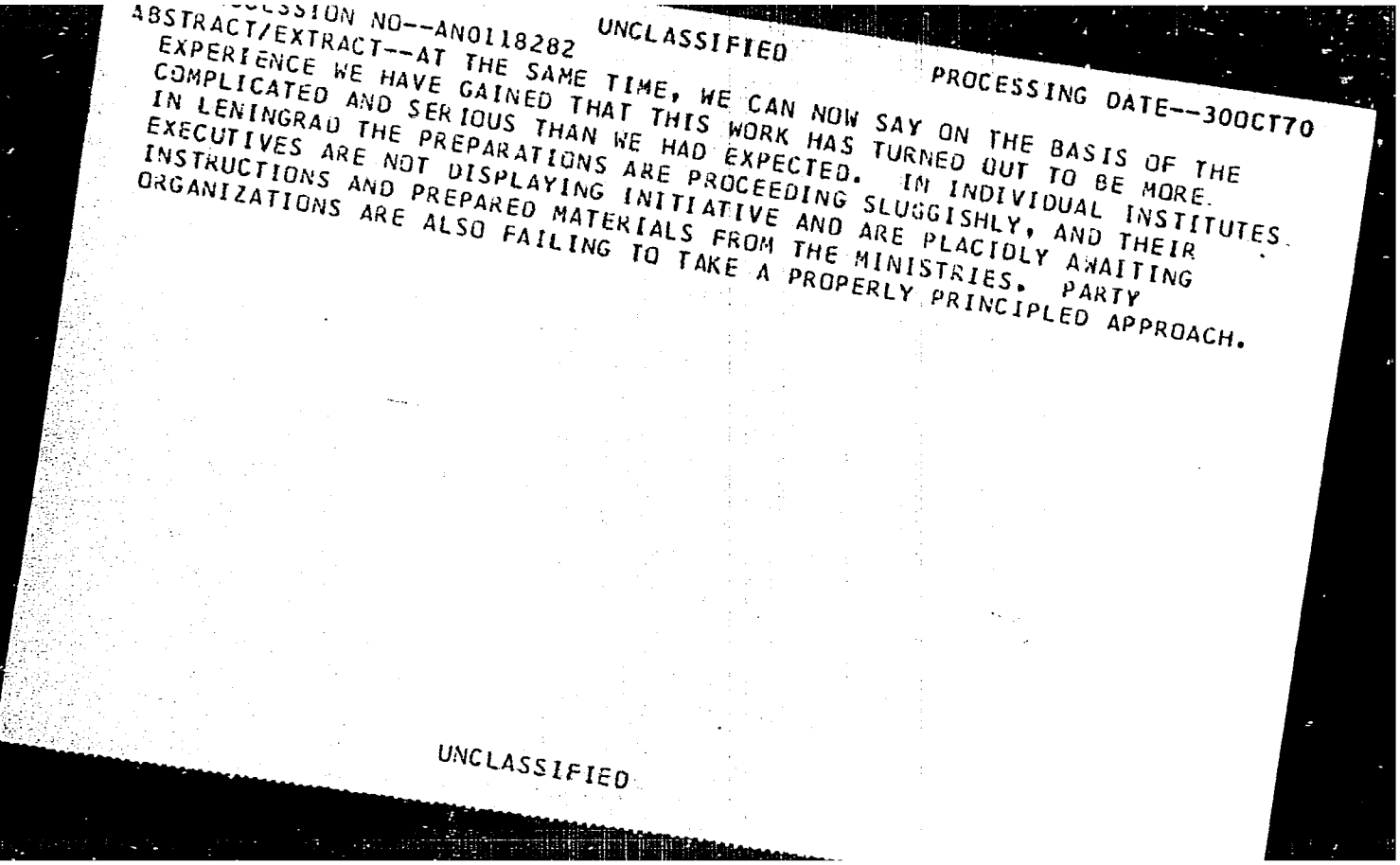

ACCESSION NO--AN0118282 UNCLASSIFIED PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--AT THE SAME TIME, WE CAN NOW SAY ON THE BASIS OF THE EXPERIENCE WE HAVE GAINED THAT THIS WORK HAS TURNED OUT TO BE MORE COMPLICATED AND SERIOUS THAN WE HAD EXPECTED. IN INDIVIDUAL INSTITUTES IN LENINGRAD THE PREPARATIONS ARE PROCEEDING SLUGGISHLY, AND THEIR EXECUTIVES ARE NOT DISPLAYING INITIATIVE AND ARE PLACIDLY AWAITING INSTRUCTIONS AND PREPARED MATERIALS FROM THE MINISTRIES. PARTY ORGANIZATIONS ARE ALSO FAILING TO TAKE A PROPERLY PRINCIPLED APPROACH.

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USSR

SEN PRANAB KUMAR

"Asymptotic Sequential Tests for Regular Functionals of Distribution Functions"

Teoriya Veroyatnostey i yeye Primeneniya [The Theory of Probabilities and Its Applications], 1973, Vol 18, No 2, pp 235-249 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V159)

Translation: The concept of asymptotic sequential tests of the likelihood ratio for complex hypotheses developed by Bartlett (Bartlett, M. S., Proc. Cambridge Phil. Soc., 1946, Vol 42, pp 239-244), Cox (RZHMat, 1964, 6V117) and others is extended to a broad class of regular functionals of distribution functions. Various properties of the sequential tests suggested are studied and they are compared with criteria produced by other methods. Certain applications are indicated.

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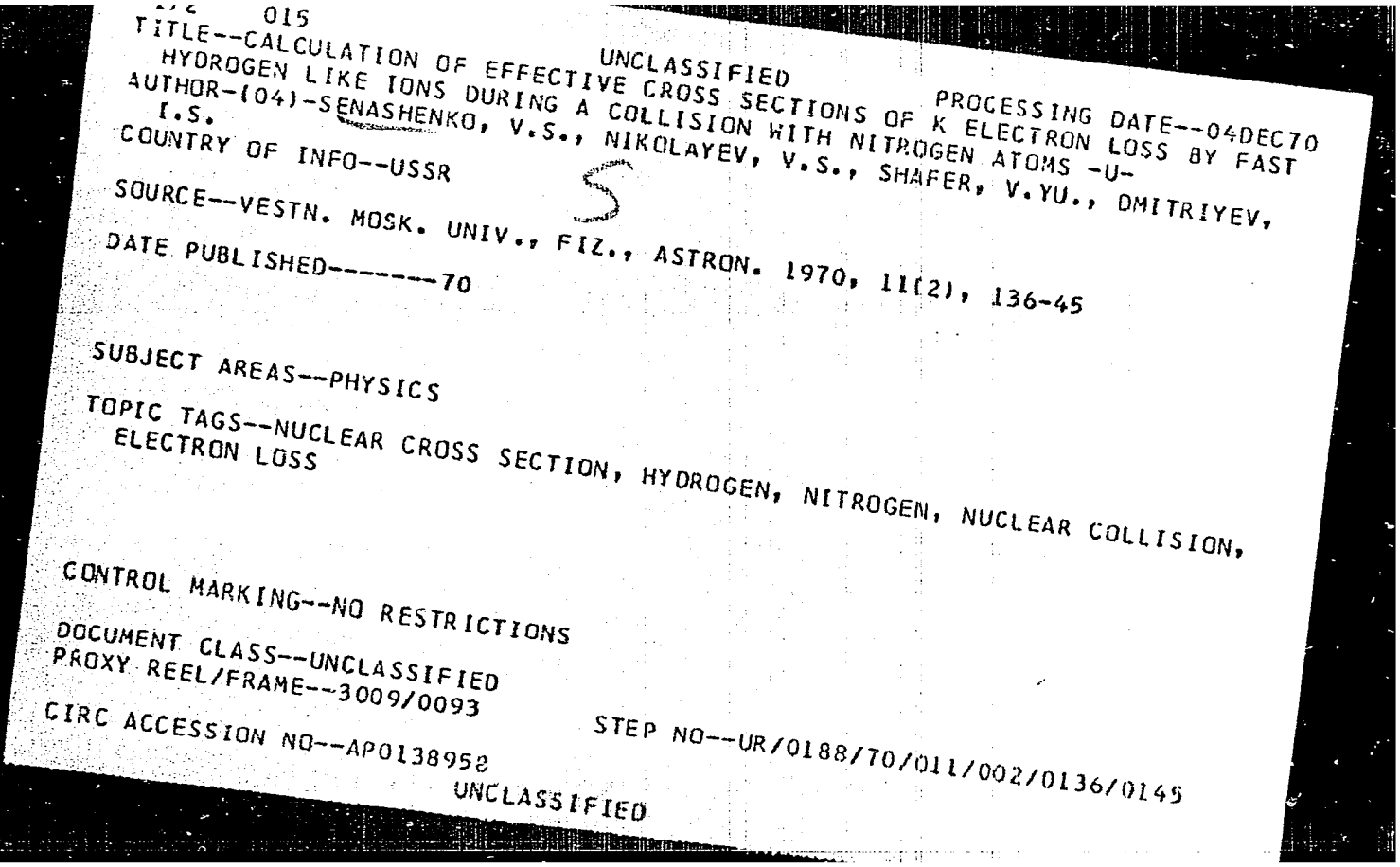
Author's view



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TITLE--CALCULATION OF EFFECTIVE CROSS SECTIONS OF K ELECTRON LOSS BY FAST HYDROGEN LIKE IONS DURING A COLLISION WITH NITROGEN ATOMS -U-

PROCESSING DATE--04DEC70

AUTHOR-(04)-SENASHENKO, V.S., NIKOLAYEV, V.S., SHAFER, V.YU., DMITRIYEV, I.S.

COUNTRY OF INFO--USSR

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DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NUCLEAR CROSS SECTION, HYDROGEN, NITROGEN, NUCLEAR COLLISION, ELECTRON LOSS

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DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3009/0093

STEP NO--UR/0188/70/011/002/0136/0145

CIRC ACCESSION NO--AP0138958

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CIRC ACCESSION NO--AP0138958 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY USING A NONRELATIVISTIC BORN APPROXN., THE CROSS SECTIONS ARE CALCD. OF K-E LOSS BY FAST H LIKE IONS OF ARBITRARY ELEMENTS DURING COLLISION WITH N ATOMS. SIMPLE APPROX. FORMULAS ARE FOUND FOR THE EFFECTIVE CROSS SECTIONS IN LIMITING CASES. THE THEORETICAL RESULTS ARE COMPARED WITH EXPTL. ONES.

UNCLASSIFIED

USSR

UDC 621.378.3

IVANOV, L.P., LOGGINOV, A.S., SAMOYLOV, V.P., SENATORCV, K.YA.

"Self-Modulation Of Radiation Of Injection Lasers With A Single Heterojunction"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11), 1972, pp 92-94

Abstract: The results are presented of an experimental study of the dynamics of radiation of injection lasers, undertaken with the object of detecting pulsations connected with the spreading out of radiation across the plane of a p-n junction. A comparative study was made of GaAs lasers produced by various methods: diffusion and epitaxial-diffusion with single and double heterojunctions. The specimens studied had a resonator length of 300-800 microns and operated in a pulsed regime at temperatures from 100 to 350° K. The magnitude of the pumping current could be varied in the limits zero to 350 amp and the pulse duration in the 50-300 nanosec range. The radiation dynamics were studied by the electron-optical chronography method. It is shown that in diffusion and epitaxial-diffusion lasers, as well as in double heterolasers, the configuration of the radiation region is not changed in the process of generation of continuous pulses of radiation. In single $Al_xGa_{1-x}As$--GaAs lasers operating at a temperature close to critical a regime of continuous pulses of radiation develops at once at the

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USSR

IVANOV, L. P., et al., Kvantovaya elektronika, No 5(11), 1972, pp 92-94

threshold of generation. One of the special features of operation is the penetration of radiation into the passive n-region of the laser and deflection of the directivity pattern of radiation from the resonator mirror normal. The authors thank P.G. Yeliseyev for discussion of the results of the work and M.A. Ambartsumyan and V.G. Karnaukhov for giving specimens of lasers. 3 fig. 11 ref. Received by editors, 9 March 1972; after revision, 5 Sept 1972.

2/2

UDC: 621.373.826

USSR

YELISEYEV, P. G., IVANOV, L. P., LOGGINOV, A. S., SENATOROV, K. Ya.

"Frequency Self-Modulation of Emission in an Injection Laser"

Kratkiye soobshch. po fiz. (Brief Reports on Physics), 1972, No 6, pp 53-55 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D148 by A. K.)

Translation: Spectral chronograms with a resolution of $3 \cdot 10^{-11}$–10^{-10} s are obtained for an isolated emission channel in a strip laser based on a double heterostructure at 300°K. It is evident from these chronograms that frequency self-modulation indicates instability of single-mode emission, and that this self-modulation accompanies buildup of pulsations and cutoff of single-mode emission with a transition to nonstationary (spike) multimode emission. Frequency self-modulation leads to considerable broadening of the individual excited modes, and to blurring of the spectrum. The influence of the frequency self-modulation on the emission spectrum increases with an increase in pumping.

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USSR

SENATOROVA, O. G., and SAMOYLOV, A. I., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 11, 1973, pp 76-77

measuring on oblique cuts. It was found that in specimens treated with sharp cutters, i.e. with low residual stresses, the microhardness increases towards the surface. The area affected by stresses is 1.1-1.2 times greater than the hardened zone.

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USSR

UDC 575.595.773.4

GONCHAROVA, R. I., KULINYe. T., and SENATOROVA, T. P.

"Relationship Between the Intensity of Mutation in Drosophila and the Frequency of Electromagnetic Fields in the 1 to 600 mHz Range"

Minsk, Izvestiya Akademii Nauk BSSR, No 1, 1973, p 140

Translation of Russian abstract: The authors studied the genetic activity of radiofrequency fields in the 1 to 600 mHz range in experiments with Drosophila melanogaster, using recessive sex-linked lethal mutations as a criterion. They also studied the mutation response in sperm from males of the Berlin strain. They used continuous oscillations created by a GZ-12 oscillator in the 1 to 135 mHz range and by a GS-6 oscillator in the 200 to 900 mHz range. The flies were exposed in a specially constructed chamber whose upper and lower sides were made of brass and consisted of condenser plates 80 mm in diameter.

Exposure to frequencies of 1, 5, 30, 40, 50, 60, 70, 80, 90, 100, 130, 200, 340, 360, 400, 420, 500, and 600 mHz did not have any statistically significant effects. Only fields at frequencies of 300 and 440 mHz exhibited mutagenic activity.

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USSR UDC 621.3.032.266

KHVOROV, M.I., STEPANOV, YU.D., PODREGHNEVA, N.V., SEMATOV, O.I.

"Experimental Investigation Of Interaction Of Spiral Electron Flow With Electromagnetic Waves In Two-Dimensional Periodic Delay System"

Elektron. tekhnika. Nauch.-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1971, Issue 5, pp 3-9 (from RZh-Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10A26)

Translation: An investigation is conducted of an experimental model of the interaction of spiral electron flows with waves in a two-dimensional periodic delay system. It is shown as a result of the experiments that attainment of synchronism of the electron flow with the electromagnetic waves depends on the values of both the azimuthal and the axial components of the speed of the electron flow. It is established that synchronism with direct and counter waves is attained with substantially equal values of the azimuthal component of the speed of the flow. It is disclosed that with specific relationships of the parameters of the delay system and the electron stream the synchronism voltage does not depend on the frequency. 4 ref. Summary.

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USSR

UDC 621.385.64

SENATOV, O.I.

"Condition Of Intensive Generation Of A Second Harmonic In Magnetrons"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), Issue No 10, pp 134-136 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A167)

Translation: It is shown that the condition of intensive generation of a second harmonic in magnetrons is the matching of the doubled working frequency with the frequency either of the zero mode of oscillations or the mode of oscillations with the number n ($n \neq 0$) if the highfrequency field of this mode is nonhomogeneous. 2 ref. Summary.

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USSR

UDC 621.385.6

SENATOV, O.I.

"Single-Frequency And Multifrequency States Of A Model Of An Electronic Amplifier With N Degrees Of Freedom"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 3, pp 26-35 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8A144)

Translation: The paper considers an oscillatory system with n degrees of freedom which can be used as a theoretical model of an electronic microwave amplifier for investigation of the conditions of excitation or suppression of undesirable oscillation modes. Equations for the steady state are obtained by the nonlinear theory of oscillations. The equivalent nonlinear conductances introduced are functions of the amplitudes of all the oscillation modes. The boundaries are found of the area of stability of single-frequency and certain multifrequency states. 5 ref. Summary.

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USSR

UDC 621.375.82

KRYUKOV, P. G., MATVEYETS, YU. A., SENATSKIY, YU. V., FEDOSIMOV, A. I., CHEKALIN, S. V., and SHATBERASHVILI, O. B.

"On Mechanisms for Radiation Energy and Power Limitation During the Amplification of Ultrashort Pulses in Neodymium Glass Lasers"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No 2(14), Moscow, "Sov. Radio," 1973, pp 102-105 (English summary) (from RZh-Fizika, No 10, Oct 73, Abstract No 10D334 from authors' abstract)

Translation: It is shown that a limitation of the energy and power of ultrashort pulses during amplification in Nd glass lasers sets in as a result of the nonlinear interaction of the laser radiation with the optical medium of the laser itself. Emerging as limitation mechanisms here are breakdowns due to self-focusing in the case of the propagation of light beams close to parallel through the amplifier, and spectrum broadening and radiation scattering in the case of divergent beams.

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(4)

USSR

UDC: 533.9...16

BASOV, N. G., ZARITSKIY, A. R., ZAKHAROV, S. D., KRYUKOV, P. G., MATVEYETS, Yu. A., SENATSKIY, Yu. V., FEDOSIMOV, A. I., CHEKALIN, S. V.

"Producing High-Power Light Pulses on Wavelengths of 1.06 and 0.53 μm and Using Them to Heat a Plasma. II. A Neodymium Glass Laser With Conversion of Emission to the Second Harmonic"

Moscow, Kvant. elektronika--sbornik (Quantum Electronics--collection of works), "Sov. radio", 1972, pp 50-55 (from RZh-Fizika, No 6, Jun 73, abstract No 6G375)

Translation: Investigations of processes of heating by means of laser sources with different wavelengths are of considerable importance for explaining mechanisms of energy transfer in laser heating of a plasma. This paper tells of the development of a high-power light source for heating experiments with emission on two wavelengths: the wavelength of a neodymium laser (1.06 μm) and its second harmonic (0.53 μm). An efficiency of greater than 50% in converting 1.06-μm emission to the second harmonic is achieved in a KDP crystal. The emission energy on the 0.53-μm wavelength is 10 j with a pulse duration of 1.0 ns. Part I, see RZhFiz, 1973, 5G239.

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UDC 621.378.325 + 543.46

BASOV, N.G., ZARITSKIY, A.R., ZAKHAROV, S.D., KRYUKOV, P.G., MATVEYETS, YU.A., SENATSKIY, YU.V., FEDOSIMOV, A.I., CHEKALIN, S.V.

"Achievement Of Powerful Light Pulses At A Wavelength Of 1.06 And 0.53 Micron And Their Use For Plasma Heating. II--Nd-Glass Laser With Conversion Of Radiation To The Second Harmonic"

Kvantoveya elektronika (Quantum Electronics), Moscow, No 6(12), 1972, pp 50-55

Abstract: The construction is described and the characteristics presented of a multistage Nd-glass laser. The laser assembly consists of the following: 1) Active elements of GLS-1 neodymium glass, 700 mm long with ends cut at a Brewsterian angle; 2) Resonator mirror; 3) Cells with clearing absorber; 4) Aperture diaphragms; 5) Selectors of longitudinal types of oscillations in oscillator; 7) Lenses; and 8) Electrooptical gate with a laser discharger. A driving oscillator assembled according to the scheme of an oscillator with self-synchronization of modes serves as the source of short light pulses in the device. The length of the oscillator resonator, formed by two mirrors with reflection coefficients of 100 and 20 percent, amounts to 6 m. Cells with a nonlinear absorber -- a solution of No. 3955 dye in nitrobenzene -- were in contact with an opaque mirror. Two selectors of axial modes in the form of

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USSR

UDC 543.46 + 621.

BASOV, N.G., ZARITSKIY, A.R., ZAKHAROV, S.D., KROKHIN, O.N., KRYUKOV, P.G., MATVEYETS, YU.A., SENATSKIY, YU.V., FEDOSIMOV, A.I.

"Achievement Of Powerful Light Pulses At 1.06 And 0.53 Micron Wavelengths And Their Use For Plasma Heating. I. Experimental Study Of The Processes Of Radiation Reflection During Laser Heating Of Plasma At Two Wavelengths"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11),1972, pp 63-71

Abstract: The experimental results are presented of calorimetric, temporal, spectral and polarization measurements of radiation reflected back from plasma which is heated by nanosecond laser pulses with a wavelength of 1.06 and 0.53 micron with fluxes at targets of various materials exceeding 10^{14} watt/cm^2. The results discussed represent the first attempt to study laser heating of plasma which is produced at solid targets in the green region of the spectrum. It is found that plasma absorption of the heating light at a 0.53 micron wavelength is three times greater than at a 1.06 micron wavelength. The authors express their appreciation to V.B. Rozanov for discussion of the results of the work. 3 fig. 19 ref. Received by editors, 25 Oct 1971.

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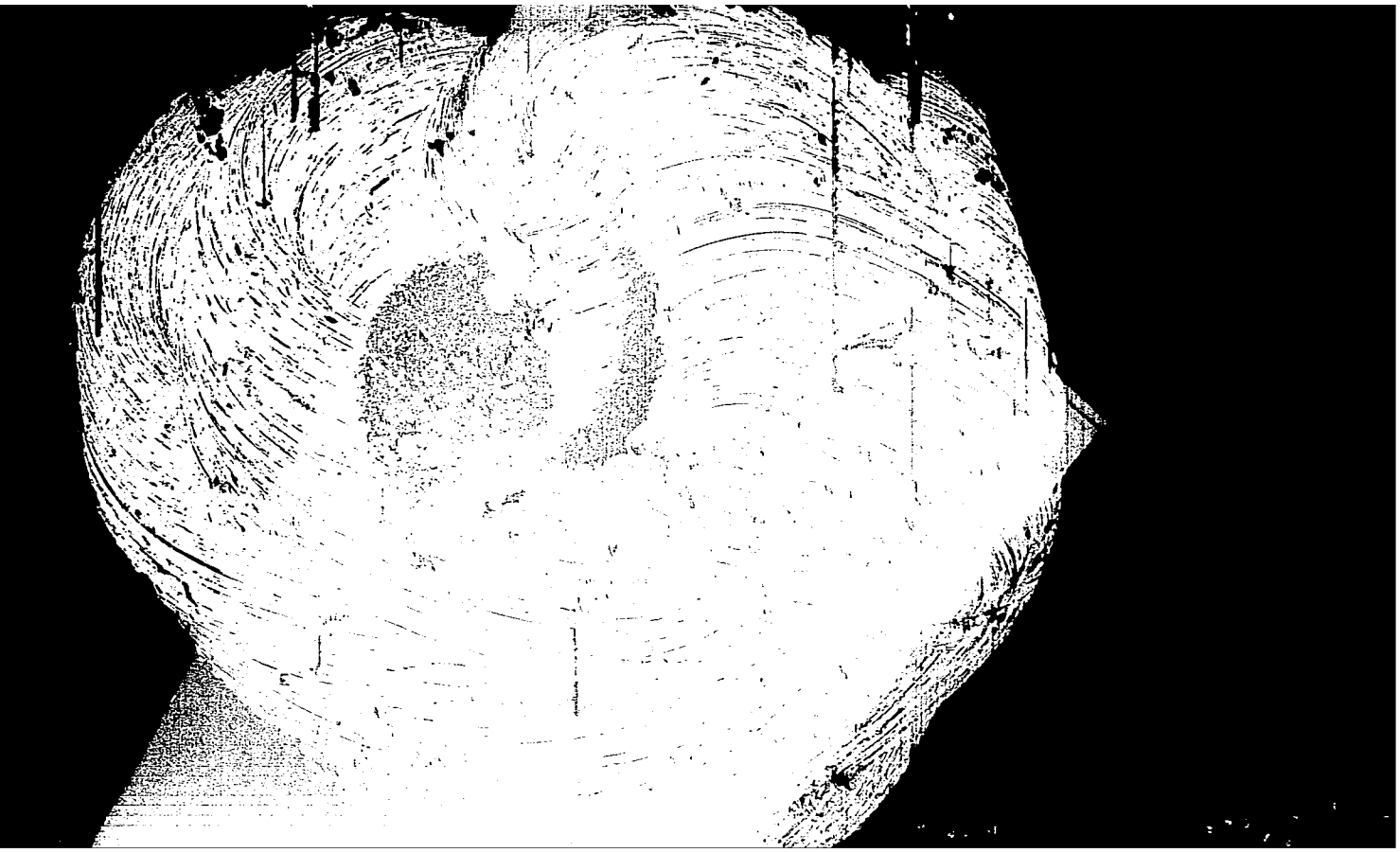

USSR

SENATSKIY, YU.V.

UDC 621.378.325

"Active Elements For Power Laser Unit Based On Neodymium Glass"

Kvantovaya elektronika, Moscow, No 5, May 72, pp 109-112

Abstract: The paper considers perspective uses in neodymium glass power laser units of elements (traveling-wave amplifiers) in the form of expanding funnel-shaped openings with round or right-angles cross sections and nonpumped-up mouths, and the consequently diverging beams. At the output of such active elements the possibility is presented of obtaining short and ultrashort (10^{-8} -- 10^{-12} sec) light pulses with energies of 100-1000 joule. The author thanks P.G. Kryukov for helpful discussion of the work. Received by editors, 19 May 71. 1 fig. 10 ref.

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USSR

UDC 621.378.9:533.9.02

BASOV, N. G., ZAKHAROV, S. D., KROKHIN, O. N., KRYUKOV, P. G., SENATSKIY, Yu. V., TYURIN, Ye. L., FEDOSIMOV, A. I., CHEKALIN, S. V., SHCHELEV, M. Ya.

"Studies of a Plasma Formed by Ultrashort Laser Pulses"

Moscow, Kvantovaya Elektronika, No. 1, 1971, pp 4-28

Abstract: Experimental studies of processes occurring in the high-temperature heating of a plasma by focusing ultrashort laser radiation on the surface of lithium deuteride are described. Studies of plasma heating with laser radiation of duration 10^{-11}-10^{-12} sec were begun in 1968 at the Laboratory of Quantum Radiophysics of the Physics Institute imeni P. N. Lebedev. Fast neutrons were recorded upon focusing these pulses on the surface of a lithium deuteride target, indicating the rise of conditions for a thermonuclear dh-reaction and for obtaining a plasma of high temperature and density. Subsequent research raised the following questions: how does absorption of energy by a solid occur if the laser radiation is concentrated in a pulse with a duration of several picoseconds? How is the strong reflection of laser radiation from the target explained? What are the possibilities of raising ion temperature, and consequently neutron yield, in

BASOV, N. G., et al, Kvantovaya Elektronika, No. 1, 1971, pp 4-28

heating a plasma with ultrashort pulses? Shadow photographs of the plasma with illumination by ultrashort pulses and the recording of plasma dispersion with the aid of an electron-optical converter are described. The same electron-optical converter was used to study the change in the reflection of laser pulses with time, and x-ray measurements were made of the electron temperature of the plasma. A review of the basic experimental data indicates that the results are from laser pulses consisting not of one, but of several subpulses. Experiments show that the interaction of each subpulse with the target is not the same but a function of the previous history and repetition time of the subpulse relative to the beginning of the process. Heating of the plasma occurs as follows: one of the first subpulses incident on the target ionizes it to a depth approximately equal to the wavelength of the laser radiation. When the value of n_e becomes comparable to the value of n_{cr}, the remaining part of the subpulse is reflected. Heating of the plasma to a temperature of several electron-volts occurs simultaneously with ionization. As a result, the plasma formed is slowly dispersed. All subpulses incident on the target at this stage will be reflected until the particle density drops, as a result of dispersion, to a value corresponding to n_{cr}. At this time high-temperature heating of the plasma is possible. It is thus established that reflection of ultrasonic pulses arises in plasma regions where the electron density is close to critical. Other subjects discussed in the article include plasma radiation and heat conductivity, the effect of laser radiation pressure, and electron-ion relaxation in a plasma formed by a powerful ultrashort laser pulse.

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USSR UDC: 621.385:530.145-6:53

BASOV, N. G., ZAKHAROV, S. D., KROKHIN, O. N., KRYUKOV, P. G., SENATSKIY, Yu. V., CHEKALIN, S. V., FEDOSIMOV, A. I., SHCHELEV, M. Ya.

"Investigation of Heating of a Plasma Formed by Ultrashort Laser Pulses"

Kratk. soobshch. po fiz. (Brief Reports on Physics), 1970, No 8, pp 48-52 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12D464)

Translation: In order to form a plasma, ultrashort pulses of emission from a neodymium glass laser operating under conditions of self-synchronization of modes on a wavelength of 1.06 μ were focused on a target of LiD in a vacuum. The period between pulses was 15 nsec. The individual laser pulse is not simple, but rather consists of a series of peaks, the interval between them and the number of peaks varying from flash to flash. The overall pulse duration reaches 10 nsec, the duration of an individual peak being in the range of 10^{-11}-10^{-12} s. The output energy is ~0.1 J. The diameter of the focal spot on the target is $2 \cdot 10^{-2}$ cm. Heating of the plasma was studied by the methods of shadow photography and schlieren photography. A. K.

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UDC 621.375.82

USSR

KRYUKOV, P. G., MATVEYETS, YU. A., SENATSKIY, YU. V., FEDOSIMOV, A. I., CHEKALIN, S. V., and SHATBERASHVILI, O. B.

"On Mechanisms for Radiation Energy and Power Limitation During the Amplification of Ultrashort Pulses in Neodymium Glass Lasers"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No 2(14), Moscow, "Sov. Radio," 1973, pp 102-105 (English summary) (from RZh-Fizika, No 10, Oct 73, Abstract No 10D334 from authors' abstract)

Translation: It is shown that a limitation of the energy and power of ultrashort pulses during amplification in Nd glass lasers sets in as a result of the nonlinear interaction of the laser radiation with the optical medium of the laser itself. Emerging as limitation mechanisms here are breakdowns due to self-focusing in the case of the propagation of light beams close to parallel through the amplifier, and spectrum broadening and radiation scattering in the case of divergent beams.

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USSR UDC 543.46 + 621.378.325

BASOV, N.G., ZARITSKIY, A.R., ZAKHAROV, S.D., KROKHIN, O.N., KRYUKOV, P.G., MATVEYETS, YU.A., SENATSKIY, YU.V., FEDOSIMOV, A.I.

"Achievement Of Powerful Light Pulses At 1.06 And 0.53 Micron Wavelengths And Their Use For Plasma Heating. I. Experimental Study Of The Processes Of Radiation Reflection During Laser Heating Of Plasma At Two Wavelengths"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11),1972, pp 63-71

Abstract: The experimental results are presented of calorimetric, temporal, spectral and polarization measurements of radiation reflected back from plasma which is heated by nanosecond laser pulses with a wavelength of 1.06 and 0.53 micron with fluxes at targets of various materials exceeding 10^{14} watt/cm^2. The results discussed represent the first attempt to study laser heating of plasma which is produced at solid targets in the green region of the spectrum. It is found that plasma absorption of the heating light at a 0.53 micron wavelength is three times greater than at a 1.06 micron wavelength. The authors express their appreciation to V.B. Rozanov for discussion of the results of the work. 3 fig. 19 ref. Received by editors, 25 Oct 1971.

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USSR

UDC 621.378.325 + 543.46

BASOV, N.G., ZARITSKIY, A.R., ZAKHAROV, S.D., KRYUKOV, P.G., MATVEYETS, YU.A., SENATSKIY, YU.V., FEDOSIMOV, A.I., CHEKALIN, S.V.

"Achievement Of Powerful Light Pulses At A Wavelength Of 1.06 And 0.53 Micron And Their Use For Plasma Heating. II--Nd-Glass Laser With Conversion Of Radiation To The Second Harmonic"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 6(12), 1972, pp 50-55

Abstract: The construction is described and the characteristics presented of a multistage Nd-glass laser. The laser assembly consists of the following: 1) Active elements of GLS-1 neodymium glass, 700 mm long with ends cut at a Brewsterian angle; 2) Resonator mirror; 3) Cells with clearing absorber; 4) Aperture diaphragms; 5) Selectors of longitudinal types of oscillations in oscillator; 7) Lenses; and 8) Electrooptical gate with a laser discharger. A driving oscillator assembled according to the scheme of an oscillator with self-synchronization of modes serves as the source of short light pulses in the device. The length of the oscillator resonator, formed by two mirrors with reflection coefficients of 100 and 20 percent, amounts to 6 m. Cells with a nonlinear absorber -- a solution of No. 3955 dye in nitrobenzene -- were in contact with an opaque mirror. Two selectors of axial modes in the form of

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USSR

BASOV, N.G., et al, Kvantovaya elektronika, Moscow, No 6(12), pp 50-55

(4)

inclined Fabry-Perot interferometers were used for narrowing of the generation spectrum. With the aid of these interferometers the generation spectrum was narrowed to ~0.05 Å and in so doing the pulses emitted by the oscillator were expanded to 1 nanosec. In the KDP crystal the radiation at the output is converted into a second harmonic with an efficiency greater than 50 percent. The radiation energy at a 0.53 micron wavelength amounts to 10 joule. The authors thank M.F. Stel'makh, I.S. Rez[illegible], A.I.Kovrigin, and V.P.Polov for assistance in conducting experiments with KDP crystals. 3 ill. 16 ref. Received by editors, 25 Oct 1971.

2/2

USSR

UDC 621.378.325

SENATSKIY, YU.V.

"Active Elements For Power Laser Unit Based On Neodymium Glass"

Kvantovaya elektronika, Moscow, No 5, May 71, pp 109-112

Abstract: The paper considers perspective uses in neodymium glass power laser units of elements (traveling-wave amplifiers) in the form of expanding funnel-shaped openings with round or right-angles cross sections and nonpumped-up mouths, and the consequently diverging beams. At the output of such active elements the possibility is presented of obtaining short and ultrashort (10^{-8} -- 10^{-12} sec) light pulses with energies of 100-1000 joule. The author thanks P.G. Kryukov for helpful discussion of the work. Received by editors, 19 May 71. 1 fig. 10 ref.

1/1

UDC 621.378.9:533.9.02

USSR

BASOV, N. G., ZAKHAROV, S. D., KROKHIN, O. N., KRYUKOV, P. G., SENATSKIY, Yu. V., TYURIN, Ye. L., FLDOSIMOV, A. I., CHEKALIN, S. V., SHCHELEV, M. Ya.

"Studies of a Plasma Formed by Ultrashort Laser Pulses"

Moscow, Kvantovaya Elektronika, No. 1, 1971, pp 4-28

Abstract: Experimental studies of processes occurring in the high-temperature heating of a plasma by focusing ultrashort laser radiation on the surface of lithium deuteride are described. Studies of plasma heating with laser radiation of duration 10^{-11}-10^{-12} sec were begun in 1968 at the Laboratory of Quantum Radiophysics of the Physics Institute imeni P. N. Lebedev. Fast neutrons were recorded upon focusing these pulses on the surface of a lithium deuteride target, indicating the rise of conditions for a thermonuclear db-reaction and for obtaining a plasma of high temperature and density. Subsequent research raised the following questions: how does absorption of energy by a solid occur if the laser radiation is concentrated in a pulse with a duration of several picoseconds? How is the strong reflection of laser radiation from the target explained? What are the possibilities of raising ion temperature, and consequently neutron yield, in

BASOV, N. G., et al, Kvantovaya Elektronika, No. 1, 1971, pp 4-28

heating a plasma with ultrashort pulses? Shadow photographs of the plasma with illumination by ultrashort pulses and the recording of plasma dispersion with the aid of an electron-optical converter are described. The same electron-optical converter was used to study the change in the reflection of laser pulses with time, and x-ray measurements were made of the electron temperature of the plasma. A review of the basic experimental data indicates that the results are from laser pulses consisting not of one, but of several subpulses. Experiments show that the interaction of each subpulse with the target is not the same but a function of the previous history and repetition time of the subpulse relative to the beginning of the process. Heating of the plasma occurs as follows: one of the first subpulses incident on the target ionizes it to a depth approximately equal to the wavelength of the laser radiation. When the value of n_e becomes comparable to the value of n_{cr}, the remaining part of the subpulse is reflected. Heating of the plasma to a temperature of several electron-volts occurs simultaneously with ionization. As a result, the plasma formed is slowly dispersed. All subpulses incident on the target at this stage will be reflected until the particle density drops, as a result of dispersion, to a value corresponding to n_{cr}. At this time high-temperature heating of the plasma is possible. It is thus established that reflection of ultrasonic pulses arises in plasma regions where the electron density is close to critical. Other subjects discussed in the article include plasma radiation and heat conductivity, the effect of laser radiation pressure, and electron-ion relaxation in a plasma formed by a powerful ultrashort laser pulse.

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USSR UDC: 621.385:530.145-6:53

BASOV, N. G., ZAKHAROV, S. D., KROKHIN, O. N., KRYUKOV, P. G., SENATSKIY, Yu. V., CHEKALIN, S. V., FEDOSIMOV, A. I., SHCHELEV, M. Ya.

"Investigation of Heating of a Plasma Formed by Ultrashort Laser Pulses"

Kratk. soobshch. po fiz. (Brief Reports on Physics), 1970, No 8, pp 48-52 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12D464)

Translation: In order to form a plasma, ultrashort pulses of emission from a neodymium glass laser operating under conditions of self-synchronization of modes on a wavelength of 1.06 μ were focused on a target of LiD in a vacuum. The period between pulses was 15 nsec. The individual laser pulse is not simple, but rather consists of a series of peaks, the interval between them and the number of peaks varying from flash to flash. The overall pulse duration reaches 10 nsec, the duration of an individual peak being in the range of 10^{-11}-10^{-12} s. The output energy is ~0.1 J. The diameter of the focal spot on the target is $2 \cdot 10^{-2}$ cm. Heating of the plasma was studied by the methods of shadow photography and schlieren photography. A. K.

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USSR

UDC: 621.378.325

BYKOVSKIY, N. Ye., KAN, V., KRYUKOV, I. G., LATVEYETS, Yu. A., NI, N. L., SEMATSKIY, Yu. V., and CHEKALIN, S. V.

"Increasing the Energy Ratio of Ultrashort Laser Pulses to Noise"

Moscow, Kvantovaya elektronika, No 7, 1972, pp 68-70

Abstract: The purpose of this paper is to investigate the contrast, i.e., the ratio of the basic pulse energy to the background noise radiation energy, of a laser generating ultrashort pulses. The laser considered uses neodymium glass. In real lasers, the limiting contrast is reached not because of the nonlinear losses in the interaction of the radiation with the optical material of the laser equipment, as some researchers insist, but for other reasons. These losses weaken the most intense of the pulses, and consequently reduce the contrast. This brief communication demonstrates how these losses can be reduced in exchange for a reduction in the energy density of the resonator. The theory behind this procedure is presented, and the schematic of an amplifier for the laser in a stable two-component medium is reproduced. Estimates, made from oscillograms, indicated that the contrast was at least doubled by this device.

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USSR

SENCHENKO, D. V.

"One Integer Nonlinear Problem in Selection of Delivery Form"

Vopr. Ekon.-mat. Modelir [Problems of Economic and Mathematical Modeling -- Collection of Works], Moscow University Press, 1971, Moscow, pp 238-253, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V582 by Yu. Finkel'shteyn).

Translation: There are n consumers and one supplier of a product which can be delivered either directly from the supplier (transit) or through a supply base (combined supply is forbidden). Suppose $x_i = 1$ if consumer i is supplied through the base, and 0 with transit supply. The expenditures undertaken by consumer i depending on supply form a, p 69

The volume of necessary delivery to consumer i is represented by a_i and is considered to be an integer. If x is the number of products delivered through the base, then f(x) are the expenditures of the base.

Problem A.

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USSR

SENCHENKO, D. V. Vopr. Ekon.-mat. Modelir, Moscow University Press, Moscow, 1971, pp 238-253.

$$F(x)=\sum_{i=1}^{n}\Phi_i(x_i)+f\left(\sum_{i=1}^{n}\alpha_i x_i\right)\to\min,$$

$x_i = 0$ or 1, $i = 1, 2, \ldots, n$.

At first, the linear case is studied: $f(x) = ax$. Then

$$F(x)=\sum_{i=1}^{n}(-e_i+a\alpha_i)\,x_i+\sum_{i=1}^{n}\Phi_i(0).$$

Obviously, the optimal solution is as follows: $x_i = 1$ if $q_i = -e_i + a\alpha_i < 0$ and $x_i = 0$, if $q_i > 0$. If $q_i = 0$, then x_i can be assumed as 0 or 1. If f is nonlinear, however, full runthrough of all 2^n sets is impossible and a series of problems of the following type is studied.

Problem B.

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USSR

SENCHENKO, D. V., Vopr. Ekon.-mat. Modelir, Moscow University Press, Moscow, 1971, pp 238-253.

$$F = -\sum_{i=1}^{n} e_i x_i + \sum_{i=1}^{n} \Phi_i(0) + f(B) \to \min,$$

$$x_i = 0 \text{ или } 1, \; i = 1, \ldots, n,$$

$$\sum_{i=1}^{n} \alpha_i x_i = B.$$

Here B is a fixed integer $\left(0 < B < = \sum_{i=1}^{n} a_i = N\right)$. . Solving problem B with all B and selecting the least minimum with respect to all B, we can solve initial problem A. In all, we must solve $N = \sum_{i=1}^{n} a_i$ problems of type B.

The author further assumes that f is a downward convex, monotonically increasing function (assumption V) and applies the method of dynamic programming to the problem. The memory requirement is on the order of 2N. The number of problems B solved (using assumping V) can be reduced to $K = \max_i a_i$ problems.

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UNCLASSIFIED PROCESSING DATE--13NOV70

1/2 016

TITLE--SYNTHESIS AND X RAY DIFFRACTION STUDY OF TUNGSTEN AND RHENIUM TELLURIDES -U-

AUTHOR-(05)-OPALOVSKIY, A.A., FEDOROV, V.YE., LOBKOV, E.U., ERENBURG, V.G., SENCHENKO, L.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 561-3

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--X RAY DIFFRACTION, TUNGSTEN COMPOUND, TELLURIDE, RHENIUM COMPOUND, CHALCOGENIDE GLASS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0898 STEP NO--UR/0363/70/006/003/0561/0563

CIRC ACCESSION NO--AP0118067
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

2/2 016

CIRC ACCESSION NO--AP0118067

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. W-TE AND RE-TE MIXTS. AT A METAL CHALCOGEN RATIO OF 1:2 WERE HEATED IN EVACUATED AND SEALED QUARTZ AMPULES AT A RATE OF 8-10DEGREES PER MIN. AND CALCINED AL SUB2 O SUB3 SERVED AS THE DTA REF. THE HEATING CURVES ARE CHARACTERIZED BY 2 HEATING EFFECTS, OF WHICH THE ENDOTHERMAL EFFECT IS CAUSED BY THE MELTING OF TE AND THE EXOTHERMAL EFFECT CORRESPONDS TO OXIDN. OF THE METAL WITH TE. THIS MEANS THAT THE REACTION BETWEEN W AND RE PROCEEDS ONLY WITH FUSED CHALCOGEN. THE RATE OF THE HETEROGENEOUS REACTIONS IS STRONGLY DEPENDENT ON THE INTERACTION SURFACE, WHICH VARIES SIGNIFICANTLY IF GAS IS USED IN THE REACTION. WTE SUB2 WAS SYNTHESIZED AT 750DEGREES FOR 25-30 HR, AND RETE SUB2 AT 800DEGREES FOR 60-5 HR. THE SAMPLES WERE STUDIED BY X RAY PHASE AND IR ANALYSES. THE UNIT CELL PARAMETERS WERE CALCD. BY USING COMPUTERS. THE AGREEMENT BETWEEN THE MEASURED AND THE CALCD. D SUBHKL VALUES WAS NOT VERY GOOD, ESP. IN THE LARGE ANGLES REGION. FACILITY: INST. NEORG. KHIM., NOVOSIBIRSK, USSR.

UNCLASSIFIED

AP9053076

UR 0289

PRIMARY SOURCE: Izvestiya Sibirskogo Otdeleniya, AN SSSR, Seriya Khimicheskikh Nauk, Nr 12(162), Nr 5, pp 62-65

A. A. Opalovsky, V. E. Fyodorov, B. G. Erenburg, E. U. Lobkov, L. N. Senchenko

NEW X-RAY DATA ON TUNGSTEN AND RHENIUM SELENIDES

Complete tables of interplanar disfances for WSe_2 and $ReSe_2$ have been determined; the WSe_2 lattice constants have been corrected. $ReSe_2$ prepared from elements is a new structure modification.

1/1 1949 1832 18

USSR

MURASHKO, A. G., SENCHENKO, N. I., TERENT'YEV, M. D.

"One Method of Formal Description of Analog Computer Structural Plans"

Analogovaya i Analogo-Tsifr. Vychisl. Tekhn. [Analog and Analog-Digital Computer Equipment -- Collection of Works], No 5, Moscow, Sov. Radio Press, 1973, pp 80-86 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V641, by the authors).

Translation: One method of formal description of structural plans for analog computers is studied. One version of the internal language of an analog computer is suggested and examples of the application of this language for the description of structural plans are studied.

USSR

KOZACHENKO, Yu. V., SENCHENKOVA, A. Yu.

"Sufficient Conditions for Sampling Differentiability of Random Processes"

Teoriya Veroyatnostey i mat. Stat. Mezhved. Nauch. sb. [Theory of Probabilities and Mathematical Statistics, Interdepartmental Scientific Collection], 1972, No 7, pp 75-80 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V50 by the authors).

Translation: A general theorem is presented on the existence of continuous sampling derivatives of random processes. As a result of this theorem, sufficient conditions are presented for sampling differentiability of Gaussian processes.

1/1

TITLE--STRUCTURE OF THE CARBOHYDRATE CHAINS OF THE BLOOD GROUP SUBSTANCE (A B,O,S H) -U-

AUTHOR-(05)-KOCHETKOV, N.K., DEREVITSKAYA, V.A., LIKHOSHERSTOV, L.M., MARTYNOVA, M.D., SENCHENKOVA, S.N.

COUNTRY OF INFO--USSR

SOURCE--CARBOHYD. RES. 1970, 12(3), 437-47

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CARBOHYDRATE, BLOOD TYPE, PEPTIDE, ENZYME, CLOSTRIDIUM PERFRINGENS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0428 STEP NO--NE/0000/70/012/003/0437/0447

IRC ACCESSION NO--AP0117664

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202820013-1"

2/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70

IRC ACCESSION NO--AP0117664

BSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STRUCTURE OF THE CARBOHYDRATE CHAINS OF BLOOD GROUP SUBSTANCE (A PLUS H) (BGS) IN THE REGION ADJACENT TO THE PEPTIDE BACKBONE WAS INVESTIGATED. TWO APPROACHES WERE USED: (1) A STUDY OF THE DEGRADATION OF BGS BY A COMBINATION OF CHEM. AND ENZYMIC (PREPN. FROM CLOSTRIDIUM PERFRINGENS) METHODS, AND (2) A STUDY OF THE ALK. DEGRADATION OF BGS BY MEASUREMENT OF THE ACCUMULATED PRODUCTS OF DEGRADATION OF N ACETYLHEXOSAMINES (3,ACETAMIDO,5,DIHYDROXYETHYLFURAN) AND D GALACTOSE (METASACCHARINIC ACID AND 5,HYDROXYMETHYL,2,FURAL DEHYDE). THE CARBOHYDRATE PEPTIDE LINKAGE UNIT CONTAINS 2,ACETAMIDO,2,DEOXY,D,GALACTOSE RESIDUES. DIRECTLY ADJACENT TO THIS REGION IS A CHAIN OF SEVERAL N ACETYLHEXOSAMINE RESIDUES BOUND BY (1 YIELDS 3) LINKAGES AND PARTIALLY BRANCHED AT C 6. FACILITY: INST. ORG. CHEM., MOSCOW, USSR.

UNCLASSIFIED

UDC 541.15

USSR

KOCHETKOV, N. K., Corresponding Member Academy of Sciences USSR; KUDRYASHOV, L. I., and SENCHENKOVA, T. M., Institute of Organic Chemistry imeni N. D. Zelinskiy, Academy of Sciences USSR, Moscow

"Racemization of alpha-Amino Acids under the Action of gamma-Radiation"

Moscow, Doklady Akademii Nauk SSSR, Vol 195, No 2, 1970, pp 410-412

Abstract: The racemization in frozen 2-3 X 10^{-3}M aqueous solutions at minus 78° of L- and D-glutamic acids under the effect of gamma-irradiation was studied. The solutions were irradiated in sealed glass tubes under N_2 with doses of 0.3 - 1.5 X 10^{22} eV/g at dosage rates of 0.6-2 X 10^{16} eV/g.sec. On irradiation of L-glutamic acid, a glutamic acid fraction was isolated which had a specific rotation α_D^{20}=+8.5° and m. p. 190° vs. α_D^{20}=+13.6° and m. p. 236° for L-glutamic acid. The alphanaphthylhydantoin derivative of this fraction had m.p. 180-186° vs. m. p. 225° for the corresponding derivative of L-glutamic acid. Conclusive evidence indicating inversion of the configuration of D-glutamic acid as a result of irradiation, was also obtained; the specific rotation was lowered and a fraction was isolated by preparative separation on paper and elution that was shown to be L-glutamic

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KOCHETKOV, N. K., et al, Doklady Akademii Nauk SSSR, Vol 195, No 2, 1970, pp 410-412

acid by applying L-glutamic acid dehydrogenase from bull liver. The extent of racemization could not be estimated from the quantitative standpoint at this stage.

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1/2 024 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--CLASSIFICATION OF HYPOFERRIC ANEMIAS -U-

AUTHOR-(05)-RYABOV, S.I., RUDAKOVA, T.L., SENCHIK, R.V., MASKEYEVA, ZH.M., SHOSTKA, G.D.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 4, PP 101-105

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANEMIA, PEDIATRICS, MEDULLA, DIGESTIVE SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0943 STEP NO--UR/0504/70/042/004/0101/0105

CIRC ACCESSION NO--AP0109100

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202820013-1"

2/2 024 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0109100

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE PRESENTS THE DATA CONCERNING THE EXAMINATION OF 200 CHILDREN WITH DIFFERENT FORMS OF HYPOFERRIC ANEMIAS. ON THE BASIS OF THE INVESTIGATIONS CONDUCTED THE AUTHORS SUGGEST TO SINGLE OUT IO FORMS OF HYPOFERRIC ANEMIA TAKING INTO CONSIDERATION THE CONDITION OF MEDULLARY HEMOPOISES AND THE RESULTS OF THE STUDY OF THE FUNCTIONAL ACTIVITY OF THE CELLS OF THE ERYTHROID SERIES. THE RESULTS OF THE MORPHOLOGICAL AND FUNCTIONAL INVESTIGATION OF THE STOMACH ARE OF GREAT HELP. FACILITY: KAFEDRA VNUTRENNIKH BOLEZNEY STOMATOLOGICHESKOGO FAKUL'TETA I LENINGRAD MEDITSINSKOGO INSTITUTA IM. I. P. PAVLEVA NA BAZE BOL'NITSY NO 2 ZHDANOVSKOGO RAYONA.

UNCLASSIFIED

USSR UDC 355.77

SENCHIKHIN, V. M.

Zashchita Sel'skokhozyaystvennykh Zhivotnykh i Rasteniy ot Oruzhiya Massovogo Porazheniya (Protecting Agricultural Plants and Animals Against Weapons of Mass Destruction), Moscow, "Vysshaya Shkola," 1971, 86 pp

Translation: Annotation: This educational aid was developed in accordance with the program on civil defense for agricultural vocational-technical schools.

The work presents the basic features of the effect of weapons of mass destruction on agricultural objects, principles and procedures for protecting them, for conducting rescue work in agriculture, and so on.

Introduction:

The Communist Party and the Soviet Government are consistently and untiringly struggling for universal and complete disarmament and resolving all international questions in a peaceful manner. This policy of our state is based on the Leninist principle of peaceful coexistence among states with different social systems and the profoundly humanistic desire to eliminate war from the life of human society.

USSR

SENCHIKHIN, V. M., "Vysshaya Shkola," 1971, 86 pp

However, the imperialist circles of certain countries, having undertaken a policy of preparing for a new war, continue the arms race and militarization of the economy, and create stockpiles of weapons of mass destruction.

The imperialists are not preparing just a nuclear missile war, because the use of chemical and biological weapons is not excluded. With available means for delivering weapons of mass destruction, such a war could encompass the entire territory of the combatants in a short time, draw the entire population into the sphere of military operations, and obliterate the difference between the front and the rear.

Therefore, the typical features of this future war demand that the rear of the country and the entire population be carefully prepared for it. Under these conditions, the role of civil defense in protecting the population and national economy, including agricultural production, increases immeasurably.

Advanced preparation for protecting agricultural production and teaching the population procedures for protection against weapons of mass destruction will

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SENCHIKHIN, V. M., "Vysshaya Shkola," 1971, 86 pp

make it possible not only to reduce, but also under certain conditions to eliminate loss of animals and plants, i.e., agricultural output, and thus ensure the necessary amount of good quality food products to our population and raw material to industry under wartime conditions.

The basic principles for protecting agricultural production are presented in this text.

Table of Contents:

USSR

SENCHIKHIN, V. M., "Vysshaya Shkola," 1971, 86 pp

4/5

USSR

SENCHIKHIN, V. M., "Vysshaya Shkola," 1971, 86 pp

USSR

UDC: 621.317.743

PAYANSKIY, Yu. M., ABRAMSON, Yu. M., SENCHILO, A. Ya.

"Measurements of Radio Interference When Selecting Sites for Locating Ground-Based Stations"

Tr. NII radio (Works of the Scientific Research Institute of Radio), 1972, No 1, pp 49-54 (from RZh-Radiotekhnika, No 8, Aug 72, Abstract No 8A346)

Translation: A radio interference measurement procedure is described and ways to improve the procedure are pointed out. The characteristics of the measurement equipment are given, and the suitability of the equipment for measuring interference in ground-based stations is estimated. Factors which influence the duration of measurements are enumerated, and it is shown how the measurement time can be shortened. Resumé.

1/2 025 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--IMMEDIATE AND LONG TERM RESULTS OF SPLENECTOMY IN HEMOLYTIC ANEMIA

-U-

AUTHOR-(04)-SENCHILO, YE.A., BLINOVA, A.I., KURALEVA, V.V., ABDULKADYROVA, A.S.

COUNTRY OF INFO--USSR

SOURCE--SOV MED 33(1): 72-77. 1970

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANEMIA, SURGERY, SPLEEN, HORMONE, CORTICOSTEROID, TEST, HEMOLYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0304 STEP NO--UR/0399/70/033/001/0072/0077

CIRC ACCESSION NO--AP0135799

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0135799

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPLENECTOMY WAS PERFORMED IN 55 PATIENTS WITH HEMOLYTIC ANEMIA, AND IN 41 IT WAS DONE FOR CONGENITAL MICROSPHEROCYTIC HEMOLYTIC ANEMIA WITH GOOD IMMEDIATE OPERATIVE RESULTS. IN 11 OF 14 PATIENTS WITH ACQUIRED AUTOIMMUNE FORM OF HEMOLYTIC ANEMIA IMMEDIATE RESULTS OF THE OPERATION WERE SATISFACTORY. REMOTE OUTCOMES OF SPLENECTOMY WERE STUDIED IN 40 PATIENTS. FOLLOWING SPLENECTOMY CLINICAL RECOVERY IN PATIENTS WITH CONGENITAL HEMOLYTIC ANEMIA OCCURRED IN 29 OUT OF 30 CASES. IN INSTANCES OF ACQUIRED AUTOIMMUNE HEMOLYTIC ANEMIA SPLENECTOMY HELPED TO IMPROVE THE CONDITION OF THE PATIENTS, WHILE SOME OF THEM DEMONSTRATED COMPLETE CLINICAL RECOVERY. MAINTENANCE THERAPY WITH CORTICOSTEROID HORMONES IS INDICATED POSTOPERATIVELY IN PATIENTS WITH ACQUIRED AUTOIMMUNE FORM OF HEMOLYTIC ANEMIA PRESENTING SYMPTOMS OF HEMOLYSIS AND CONTINUED POSITIVE COOMB'S TEST.

FACILITY: CLIN. SURG. HEMATOL., LENINGRAD RES. INST. HEMATOL. BLOOD TRANSFUS., LENINGRAD, USSR.

UNCLASSIFIED

Acc. Nr. AP0045168 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code UR0489

91222z **Residual stresses in paper-plastic laminates bonded to plywood.** Koval'chuk, L. M.; Senchilo, Yu. Ya. (USSR). *Derevoobrab. Prom.* 1970, 19(1), 11-13 (Russ). Paper-plastic laminates (I) were bonded to a plywood panel (250 × 400 × 10 mm) with MF urea-HCHO adhesive and KB-3 PhOH-HCHO adhesive at 80-130° in order to det. the effects of the cooling rate on the residual stresses in I. The magnitude of residual stresses increased with the bonding temp. The more rapid the cooling rate the higher was the residual stress, particularly during the 1st 3 days following bonding. Bonding without heating also gave rise to stresses (though markedly smaller than during heating), presumably due to shrinkage of the adhesive interlayer. The stresses were mostly concd. in the corners and along the perimeter, and declined by ~50% after 7 days cooling. CKJR

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REEL/FRAME
19780068

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USSR

MARTYNENKO, O. G., BAYRASHEVSKIY, B. A., GARMIZE, L. KH., SENCHUK, L. A.

"Damping the Rotary Motion of Flow Along a Round Tube under Conditions of Constant Twist of It at the Input"

Minsk, Issled. termogidrodinamich. svetovodov (Thermodynamic Light Guide Research), 1970, pp 123-132 (from RZh-Mekhanika, No 11, Nov 70, Abstract No 11B800)

Translation: Procedures for creating rotary motion of a flow in a cylindrical connecting pipe as a result of twisting of the flow at the inlet were investigated as applied to the problem of improving the operation of the gas lens of a light guide. The dependence of the intensity of the twist on the parameters of the cylindrical coil is revealed for location of it at the walls of the input section of the channel or in the previously included convergence channel section with a degree of constriction n = 5. The flow twisting scheme for tangential approach of the air with a flow rate G_T is estimated for variation of the relative flow

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MARTYNENKO, O. G., et al, Issled. termogidrodinamich. svetovodov, 1970, pp 123-132

rate in the range of $G_T/G_{total} = 0.33-1$. It is demonstrated that it is possible to obtain a small twist of the flow which corresponds to the optimal operating conditions both by means of coils and by tangential approach of the air.

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USSR UDC: None

SENCHUKOV, F. D. and SHMURAK, S. Z., Institute of Solid State Physics, Chernogolovka Moscow Oblast

"Using the Method of Deformation Luminescence to Study the Development of Dislocation Structures in Ion Crystals in Plastic Deformation"

Moscow, Doklady Akademii nauk SSSR, vol 206, No 4, 1972, pp 852-854

Abstract: The method of deformation luminescence has been used for studying the dynamic characteristics of dislocation movement, and a method is proposed in this paper for studying the geometrical development of the dislocation structure in plastic deformation by the same means. The experiments here described were conducted with tempered KCl crystals irradiated by gamma quanta, and the consequent glow resulting from crystal deformation was recorded by a photomultiplier and potentiometer. Curves are plotted for the intensity of the deformation luminescence as a function of the deformation for various rates of loading. The advantage of the proposed method is that the investigation is conducted during the crystal deformation process and that it can be used for large deformations.
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Acc. Nr: AP0048501

Abstracting Service: CHEMICAL ABST. 5/70

Ref. Code: UR 0187

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94428g Mechanism of deformation luminescence. Senchukov, F. D.; Shmurak, S. Z. (Inst. Fiz. Tverd. Tela, Chernogolovka, USSR). *Fiz. Tverd. Tela* 1970, 12(1), 9-12 (Russ). The mechanism was studied of luminescence produced in the deformation of photochem. colored ionic crystals, KCl and KCl:Cu. On interaction of dislocations with *F*-centers, electrons are released, which recombine with holes localized on the luminescence centers. The spectrum was investigated of the deformation luminescence, and detns. were made of the quantum yield and the effective radius of bleaching of *F*-centers by dislocations.
A. Libackyj

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REEL/FRAME
19800221

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UNCLASSIFIED PROCESSING DATE--11SEP70

1/2 024

TITLE--ISOMERIZATION OF N,BUTENES ON NICKEL ZEOLITE CATALYSTS -U-

AUTHOR--ISAKOV, YA.I., LAPIDUS, A.L., AVETISYAN, R.V., SENDEL, A.K., MINACHEV, KH.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (1), 57-63

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ISOMERIZATION, BUTENE, NICKEL, ZEOLITE, CHEMICAL KINETICS, CATALYST ACTIVITY, DIMERIZATION, ETHYLENE, ION EXCHANGE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0062/70/000/001/0057/0063

PROXY REEL/FRAME--1994/1674

CIRC ACCESSION NO--AP0200278

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0200278

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC DATA WERE REPORTED IN GRAPHIC AND TABULAR FORM FOR THE TITLE REACTIONS OF A MIXT. OF 1 AND 2 BUTENES OVER SYNTHETIC ZEOLITES WITH VARYING AMTS. NI, CA AND DY, PREPD. BY PREVIOUSLY REPORTED METHODS. THE ZEOLITES OF TYPES CAA, CAX, CAY, DY AND HM AS WELL AS NI,CONTG. DERIVS. WERE VERY ACTIVE IN TRANSPOSITION OF DOUBLE BOND IN THE BUTENES AND THE MOST ACTIVE WERE NI-NAY, CAX, 5PERCENT NI-DY AND 5PERCENT NI-HM CONTACTS. THE ZEOLITES OF THE Y TYPE SHOWED INCREASING ACTIVITY WITH INCREASING DEGREE OF EXCHANGE OF NA BY NI IONS. BESIDES TRANSPOSING THE DOUBLE BOND, THE CATALYSTS ALSO BROUGHT ABOUT FORMATION OF MECH: CH SUB2 AND HIGHER HYDROCARBONS, MAINLY AMYLENES, AS WELL AS INTERCONVERSION OF CIS AND TRANS FORMS OF BUTENES. THE SUGGESTION OF PRIMARY FORMATION OF 2 BUTENE ON ION EXCHANGING NI, ZEOLITE CATALYST IN DIMERICATION OF C SUB2 H SUB4 WAS CONFIRMED.

ZZZZZZZZZZZ UNCLASSIFIED

USSR UDC: 8.74

DEDIKOV, E. A., SENDEROV, A. A.

"Some Questions Relating to Solution of the Generalized Steiner Problem"

Pribory i sistemy avtomatiki. Resp. mezhved. temat. nauch.-tekhn. sb. (Devices and Systems for Automation. Republic Interdepartmental Thematic Scientific and Technical Collection), 1972, vyp. 22, pp 3-11 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V541)

Translation: The paper deals with the relation between the generalized Steiner problem and the construction of structures which are optimum with respect to "length". Existing methods of solution are briefly analyzed. An algorithm is proposed which utilizes the property of organization of a function. Bibliography of 12 titles. Authors' abstract.

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1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--EXPERIMENTAL DATA ON THE COMPOSITION OF SYNTHETIC ANALCIMES -U-

AUTHOR-(03)-KHUNDADZE, A.G., SENDEROV, E.E., KHITAROV, N.I.

COUNTRY OF INFO--USSR

SOURCE--GEOKHIMIYA 1970, (5), 588-600

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GEOLOGY, ROCK, CRYSTALLIZATION, GEOCHEMISTRY, SODIUM OXIDE, ALUMINUM OXIDE, SILICON DIOXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0144 STEP NO--UR/0007/70/000/005/0588/0600

CIRC ACCESSION NO--AP0135641

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0135641

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANALCINE WAS SYNTHESIZED FROM GELS; HAVING MNA SUB2 O AL SUB2 O SUB3 NSIC SUB2 PLUS AQ. COMPN. (WHERE M EQUALS 4-6 AND N EQUALS 10-20) AND SIMILAR TO 20PERCENT OF NA SUB2 O PLUS AL SUB2 O SUB3 PLUS SIO SUB2 AT 120-450DEGREES UNDER WATER PRESSURE OF SIMILAR TO 250 ATM. THE MOL. SIO SUB2-AL SUB2 O SUB3 RATIO IN ITS COMPN. WAS 2.8-8.2. THE STUDY OF VARIOUS FACTORS, PROMOTING THE FORMATION OF STABLE PHASES (ALKY. OF SOLNS. ABOVE ALL), LED TO THE CONCLUSION THAT AT SMALLER THAN OR EQUAL TO 400DEGREES, THE THERMODYNAMICALLY STABLE ANALCIME VARIETIES HAVE AN IDEAL FORMULA FOR THE MINERAL (NAALSI SUB2 O SUB6 H SUB2 O WHERE SIO SUB2-AL SUB2 O SUB3 EQUALS 4); AND ITS SOLID SOLNS., WITH VARIABLE CONTENT OF COMPONENTS, ARE FORMED BY METASTABLE GROWTH. THE COMPN. OF ANALCIME THUS CANNOT BE USED IN GEOTHERMOMETRY, APPLIED TO THE LOW TEMP. METAMORPHISM AND DIAGENESIS, BECAUSE THE CHANGES IN ITS COMPN. ARE CAUSED BY VARIOUS FACTORS OF METASTABLE GROWTH. BUT THE DETECTION OF ANALCIMES, POOR IN SIO SUB2, IN HYPABYSSAL INTRUSIVE ROCKS CAN BE USED FOR OBTAINING INFORMATION ON THE TEMP. CONDITIONS OF ROCK FORMATION. FACILITY: V. I. VERNADSKII INST. GEOCHEM. ANAL. CHEM., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 542.48.003.1

DYKHNO, A. Yu., KEGAMYAN, Yu. Sh., MALYSHEVA, A. E., MITLITSKIY, G. A., and SENDEROVICH, A. E.

"Technological and Economical Comparison of Two Multipurpose TETs [Heat and Electric Power Stations] for Distillation of Sea Water"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, No 1, 1972, pp 2-5

Abstract: Results of performance, maintenance cost, reliability, and the cost of distilled water for two types of distillation plants (A and B) are analyzed. Plant A is equipped with separate zones for water boiling and uses seed crystals for reducing the formation of low-temperature boiler scale, consisting mainly of calcium carbonate and magnesium hydroxide.

Plant B operates by the open cycle principle with the feeding of vapor generators with demineralized sea water. Both plants produce electrical energy, steam, and distilled water. The cost of distilled water is 59 and 86 kopeks/ton water for plants A and B, respectively, with an electrical energy consumption of 66 kopeks/kwatt/hour.

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USSR

UDC 621.396.626

SENDERSKIY, V.A. [Member, Scientific-Technical Society Of Radio Engineering, Electronic s, And Communication imeni A.S. Popov]

"Concerning The Noise Immunity Of Quasi-Coherent Reception Of Signals Manipulated With Respect To Phase In Relation To Additive Fluctuation Interference"

Radiotekhnika, Vol 27, No 4, Apr 1972, pp 87-89

Abstract: Available expressions for the probability of error during quasi-coherent reception of FM signals are cumbersome and inconvenient for analysis and direct engineering calculations, and the approximate formulas obtained from them are valid only with large excesses of the signal over the interference. In the present work relationships are presented convenient for engineering calculations and sufficiently precise for signal-to-interference ratios which often occur in practice. The area of applicability of the relationships obtained is shown. 1 ill. 6 ref. Received, 23 Feb 1970; as short communication, 23 Sept 1971.

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USSR

UDC 517.51

SENDOV, Bl., and POPOV, V. A. (Sofia)

"Exact Asymptotic Behavior of the Best Approximation by Algebraic and Trigonometric Polynomials in a Hausdorff Metric"

Moscow, Matematicheskiy Sbornik, Vol 89, No 1, Sep 72, pp 138-147

Abstract: The article gives the exact asymptotic behavior of the best approximation by algebraic or trigonometric polynomials respectively in a Hausdorff metric in the class of all bounded functions on the segment $[a, b]$ or in the class of all bounded 2π-periodic functions respectively.

The best approximation of the bounded function f by algebraic polynomials of degree n in a Hausdorff metric is defined by the formula $E_n(f)_r = \inf_{p \in H_n} r(f,p)$, where H_n is the set of all algebraic polynomials of degree no greater than n, while the best approximation of the 2π-periodic bounded function φ by trigonometric polynomials of order n is defined by the

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SENDOV, Bl., and POPOV, V. A., Matematicheskiy Sbornik, Vol 89, No 1, Sep 72, pp 138-147

formula $E_n^T(\varphi)_r = \inf_{T \in T_n} r(\varphi, T)$, where T_n is the set of all trigonometric polynomials of order n.

It is proved that the following equalities take place:

$$\lim_{n\to\infty} \sup_{f \in L^M_{[a,b]}} \frac{n}{\ln n} E_n(f)_r = \frac{b-a}{2},$$

$$\lim_{n\to\infty} \sup_{\varphi \in L^M_{2\pi}} \frac{n}{\ln n} E_n^T(\varphi)_r = 1,$$

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SENDOV, Bl., and POPOV, V. A., Matematicheskiy Sbornik, Vol 89, No 1, Sep 72, pp 138-147

where $B^{M}_{[a,b]}$ is the class of all functions bounded in absolute value by the constant M on the segment $[a, b]$ and $B^{M}_{2\pi}$ is the class of all 2π-periodic functions bounded in absolute value by the constant M.

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USSR

UDC 620.195

SENDZIMIR, Y., and GUMOVSKA, V., Department of Physical Chemistry and Electrochemistry, Mining-Metallurgical Academy, Kracow, Poland

"Problems of Corrosion and Protection of Metal Powders"

Moscow, Zashchita Metallov, Vol 7, No , Mar-Apr 71, pp 118-125

Abstract: A review is presented of problems of corrosion and protection of metal powders. The influence of the degree of dispersion and nature of the surface of the metal powder particles on their thermodynamic properties and reaction kinetics is studied. The investigations performed were designed to improve the methods of studying corrosion processes and the properties of protection of metal powders and products made of these powders against corrosion. 34 biblio refs.

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1/2 017 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--ON MOLECULAR ORGANIZATION OF PIGMENT SYSTEM OF SOME PURPLE PHOTOSYNTHETIC BACTERIA -U-

AUTHOR-(02)-YEROKHIN, YU.YE., SENEGUB, O.A.

COUNTRY OF INFO--USSR

SOURCE--MOLEKULYARNAYA BIOLOGIYA, 1970, VOL 4, NR 3, PP 401-410

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BIOLOGIC PIGMENT, PHOTOSYNTHESIS, ENZYME, LIPOPROTEIN, ELECTRON MICROSCOPY, PHOSPHOLIPID, BACTERIA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0166 STEP NO--UR/0463/70/004/003/0401/0410

CIRC ACCESSION NO--AP0120866

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202820013-1"

2/2 017 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120866

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF HIGH TEMPERATURE, PROTEOLYTIC AND LIPOLYTIC ENZYMES ON THE STATE OF BACTERIOCHLOROPHYLL (BCHL) IN VIVO WAS STUDIED. THE PROTEOLYTIC ENZYMES DESTROY THE LONG WAVE ABSORPTION MAXIMA (8890) IN THE CHROMATOPHORES OF CHROMATIUM. THE LIPOLYTIC ENZYMES CAUSE REARRANGEMENT OF 8850 INTO A NEW FORM, 8830. DISAPPEARANCE OF 8890 ABSORPTION IS DUE TO DESTRUCTION OF ITS PROTEIN CARRIER AND FORMATION OF 8830 IS DUE TO RUPTURE OF LIPIDS (PHOSPHOLIPIDS) OF LIPOPROTEIN CARRIER 8850. HIGH TEMPERATURE CAUSED THE DESTRUCTION PRIMARILY OF 8890 AND THEN OF 8850 IN A NARROW TEMPERATURE INTERVAL CORRESPONDING TO PROTEIN DENATURATION. THE DATA OF THE ELECTRON MICROSCOPY SHOW THE CHANGES IN THE STRUCTURE OF CHROMATOPHORES UNDER THE ACTION OF ENZYMES STUDIED. SUGGESTIONS ON THE NATURAL STATE OF BCHL ARE PRESENTED. FACILITY: INSTITUTE OF BIOCHEMISTRY, ACADEMY OF SCIENCES. FACILITY: BIOPHYSICAL DEPARTMENT OF THE SECOND MEDICAL INSTITUTE, USSR, MOSCOW.

UNCLASSIFIED

USSR

UDC 632.95

DOVLATYAN, V. V., METSBURYAN, D. A., SENEKERIMYAN, Ya. A., APRESYAN, M. A.

"Method of Producing α-oxy- or α-alkoxy- β,β,β-trichloroethylamino Derivatives of 1, 3, 5-triazine"

USSR Author's Certificate No 265112, filed 25/12/67, published 28/04/72 (Translated from Referativnyy Zhurnal Khimiya, No 24(II), 1972, Abstract No 24N625, by T. A. B.)

Translation: Derivatives of 1, 3, 5-triazine (I) having herbicidal and fungicidal properties are produced by the reaction of 2-Cl-4,6-$(NH_2)_2$-I (II) or 2-Cl-4-RNH-6-NH_2-I (R-alkyl) with CCl_3CHO (III) in the presence of an alkaline catalyst in an organic solvent with boiling, with subsequent treatment with $SOCl_2$ in an organic solvent with boiling, and treatment of the reaction products with ethanol in the presence of a base with boiling of the reaction mass. Example. To 1.3 g II and 0.32 g K_2CO_3, with water cooling, add 9.4 g III and 20 ml CCl_4, heat in a water bath six hours, separate the sediment, wash with water, dry in air, treat with boiling hexane and filter off 3.8 g 2-Cl-4.6-$[CCl_3CH(OH)NH]_2$-I m. p. >350°. To 4.81 g 2-Cl-4-EtNH-6-$[CCl_3$-$-CH(OH)NH]$-I in 15 ml CCl_4, with water cooling, add a solution of 2 g $SOCl_2$ in 10 ml CCl_4, heat in a water bath ten hours, evaporate, treat the residue

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USSR

DOVLATYAN, V. V., et al., USSR Author's Certificate No 265112, filed 25/12/67, published 28/04/72

with hexane, filter, producing 4.6 g 2-Cl-4-EtNH-6-($CCl_3CHClNH$)-I, m.p. 164-6°. To 16.27 g 2-Cl-4-MeNH-6-($CCl_3CHClNH$)-I in 5 ml ethanol, with cooling, add 3.95 g pyridine by drops, heat the reaction mass in a water bath six hours and let stand over night, evaporate, treat with water and filter off 13 g 2-Cl-4-MeNH-6-[$CCl_3CH(OEt)NH$]-I, t. decomp. 226°.

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Acc. Nr: AP0049856 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: UR 0365

103220n Corrosion resistance of metallic materials during the fluorination of aqueous solutions of polynitro compounds. Bakhmutova, G. B.; Senichev, Yu. N.; Akishina, M. A.; Bocharova, N. A. (USSR). *Zashch. Metal.* 1970, 6(1), 42-3 (Russ). The corrosion resistance of a no. of metals such as simple steel, stainless and special steels, Cu and its alloys, and Al alloys, was investigated in media where the process of $CF(NO_2)_3$ prepn. was proceeding by fluorination with elementary F of 20% aq. solns. of $HC(NO_2)_3$ or $NaC(CO_2)_3$ as well as in pure $CF(NO_2)_3$. Corrosion of the metal samples was studied, in exit gases in the liq. as well as the vapor phase. The highest corrosion rate was noted in $HC(NO_2)_3$, lower in $NaC(NO_2)_3$, and in $CF(NO_2)_3$ soln. all the metals were very stable. Corrosion was much more intensive in the vapor phase, the main corrosive factors being H_2F_2 and F. The introduction into solns. of $NaHCO_3$, which binds the nonreacted F, significantly reduced corrosion, esp. in the vapor phase.

J. Liskowacki

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19801781

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